

APPENDIX K – PAGES FROM WEBSITES USED IN THE FEIS

SR-126 (Memorial Boulevard)

From East Center Street in the City of Kingsport to I-81, Sullivan County.

Public Involvement

This Web site, <http://www.tdot.state.tn.us/sr126/> (<http://www.tdot.state.tn.us/sr126/>), will be one of the principal means of public involvement and feedback.

Public comments concerning this project can also be submitted to: TDOT.Comments@tn.gov (<mailto:TDOT.Comments@tn.gov>)

SCHEDULED MEETINGS

There are no public involvement meetings scheduled at this time.

PAST MEETINGS

Public Hearing
December 11, 2012
Kingsport Civic Center Auditorium

You may access project information using the links below:

- **Draft Environmental Impact Statement (DEIS)** (*pdf*) (*large file 16 MB*)
- **Appendix for DEIS** (*pdf*) (*large file 14.6 MB*)
- **Public Hearing Handout** (*pdf*)
- **Public Hearing Maps** (*pdf*)
 - Alternate A (Sheet 1 of 2)
 - Alternate A (Sheet 2 of 2)
 - Alternate B (Sheet 1 of 2)
 - Alternate B (Sheet 2 of 2)
 - Alternate B Modified (Sheet 1 of 2)
 - Alternate B Modified (Sheet 2 of 2)

Natural Heritage Inventory Program

Helpful Links

[Explanation of Rank and Status Code \(docs/status_ranks.pdf\)](#)

[Rare and Endangered Animal List of Tennessee \(docs/animal_list.pdf\)](#)

[Tennessee Rare Plant List \(docs/plant_list.pdf\)](#)

[Tennessee Rare Species Survey Form \(http://environment-online.state.tn.us/etdec/DownloadFile.aspx?row_id=CN-1154\)](http://environment-online.state.tn.us/etdec/DownloadFile.aspx?row_id=CN-1154)

[Natural Areas Home \(index.shtml\)](#)

NEW! – Interactive Rare Species Database for Environmental Review. [Search and download data by County, Quadrangle, or Watershed. \(http://environment-online.state.tn.us:8080/pls/enf_reports/f?p=9014:3:2083109232364451\)](#)

The Natural Heritage Inventory Program operates under authority of the [Rare Plant Protection and Conservation Act of 1985 \(../permits/tcalink.shtml\)](#), and the [Rare Plant Protection and Conservation Regulations \(/sos/rules/0400/0400-06/0400-06-02.pdf\)](#). The Program maintains a GIS database with information on the distribution and ecology of rare plants, animals and ecological communities across Tennessee.

The Program uses Heritage Methodology - based on that of its parent organization [NatureServe \(http://www.natureserve.org\)](#) - for the most recent taxonomic information, ecological community classification, methodology, and software development.

The database currently contains over 14,000 rare species and plant community occurrence records as well as information on hundreds of conservation sites. Information gathered by program biologists, assists in directing conservation, restoration, and management activities of other programs in the Division.

Through the Natural Heritage Inventory Program, the Department of Environment and Conservation publishes the state's rare plant list. The ability to legally list plants as Threatened, Endangered, and Special Concern is granted by the [Rare Plant Protection and Conservation Act of 1985 \(../permits/tcalink.shtml\)](#).

The program also publishes a list of the rare animals of Tennessee, but the legal listing of animals as Threatened, Endangered, or Deemed in Need of Management is handled by the Tennessee Wildlife Resources Agency.

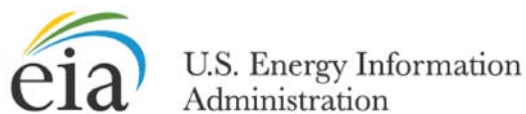
To view available data, forms, information on environmental review procedures, and publications resulting from Natural Heritage Inventory Program work [click here \(data.shtml\)](#).

The Division uses information from the Program and other sources for various conservation initiatives including identifying areas for inclusion in the Natural Areas System. Rare species data are also used by state, federal and local governments for conducting environmental reviews. Natural Heritage Program staff direct and conduct field surveys of species, natural communities, and natural areas of special concern. Staff also conduct workshops and provide technical assistance to state and federal agencies, local governments, private conservation groups, and industrial and private landowners, for use in the management of their lands. The Program issues [scientific collecting permits \(../permits/parkcoll.shtml\)](#) for research on state parks and state natural areas, and issues [rare plant dealer licenses \(../permits/enddeal.shtml\)](#).

The [Rare Plant Protection and Conservation Act of 1985 \(../permits/tcalink.shtml\)](#) also allows the Division to enter into agreements with other agencies "with respect to programs designed to conserve rare plants. . ." A formal cooperative agreement between the U.S. Fish and Wildlife Service and the State establishes the Division as the lead state agency in the process of listing and recovery efforts for federally endangered or threatened species of plants. Independent of this agreement, the Program also conducts U.S. Fish and Wildlife Service-funded projects to conserve and protect federal concern animal species. Through extensive field investigations, research and management

activities, the Division seeks to prevent imperiled species of plants and animals from becoming further imperiled, to effect the recovery of federally listed species so that they may be de-listed, and to prevent the extirpation of critically imperiled species.







Host: www2 Environment: production Database: INTANNWEB_PNX8A INTANNWEB_PNX8A Query Engine: v40 Caching Dur: page: 7 days query: 7 days Generated: 22:03:15 PM

[Home](#) > [International](#) > [International Energy Statistics](#)

International Energy Statistics

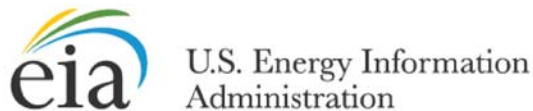
Petroleum		Natural Gas		Coal	Electricity	Renewables	Total Energy	Indicators		Country	
CO2 Emissions	Carbon Intensity	Energy Intensity	Conversions	Population	Coal Prices	Electricity Prices	Petroleum Prices	Natural Gas Prices	Heat Content		
Country: <div>All Countries by Region</div>					Start Year: <div>2007</div>		End Year: <div>2011</div>		<div>UPDATE</div>		
Product: <div>Total Carbon Dioxide Emissions from the Consumption of Energy</div>					Unit: <div>Million Metric Tons</div>						
Total Carbon Dioxide Emissions from the Consumption of Energy (Million Metric Tons)							Units Conversion 		Download Excel 		
				2007	2008	2009	2010	2011			
North America				7,065,083	6,877,108	6,407,535	6,617,038	6,506,960			
Bermuda				0.751	0.750	0.712	0.699	0.777			
Canada				593,090	578,248	549,684	546,652	552,557			
Greenland				0.600	0.642	0.648	0.648	0.611			
Mexico				444,270	452,794	421,124	432,210	462,293			
Saint Pierre and Miquelon				0.089	0.092	0.089	0.089	0.091			
United States				6,026,284	5,844,582	5,435,279	5,636,739	5,490,631			
Central & South America				1,169,560	1,222,954	1,200,598	1,288,268	1,339,474			
Antarctica				0.245	0.264	0.245	0.072	0.137			
Antigua and Barbuda				0.631	0.659	0.666	0.666	0.732			

Footnotes:

-- = Not applicable
 (s) = Value is too small for the number of decimal places shown
 NA = Not available
 W = Data withheld to avoid disclosure
 F = Forecast

Related Information:

- [Table Notes](#)
- [Sources](#)
- [Glossary](#)
- [Contacts](#)
- [Country](#)



Emissions of Greenhouse Gases in the U. S.

Release Date: March 31, 2011 | **Next Release Date:** Report Discontinued |

Report Number: DOE/EIA-0573(2009)

1. Greenhouse Gas Emissions Overview

1.1 Total emissions

Total U.S. anthropogenic (human-caused) greenhouse gas emissions in 2009 were 5.8 percent below the 2008 total ([Table 1](#)). The decline in total emissions—from 6,983 million metric tons carbon dioxide equivalent (MMTCO₂e) in 2008 to 6,576 MMTCO₂e in 2009—was the largest since emissions have been tracked over the 1990-2009 time frame. It was largely the result of a 419-MMTCO₂e drop in carbon dioxide (CO₂) emissions (7.1 percent). There was a small increase of 7 MMTCO₂e (0.9 percent) in methane (CH₄) emissions, and an increase of 8 MMTCO₂e (4.9 percent), based on partial data, in emissions of man-made gases with high global warming potentials (high-GWP gases). (Draft estimates for emissions of HFC and PFC substitutes for ozone-depleting substances in 2009 are included; 2008 data are used for emissions of other high-GWP gases.) Emissions of nitrous oxide (N₂O), on the other hand, fell by 4 MMTCO₂e (1.7 percent).

The decrease in U.S. CO₂ emissions in 2009 resulted primarily from three factors: an economy in recession, a particularly hard-hit energy-intensive industries sector, and a large drop in the price of natural gas that caused fuel switching away from coal to natural gas in the electric power sector.

Methane emissions totaled 731 MMTCO₂e in 2009 ([Figure 1](#)), up by 7 MMTCO₂e (0.9 percent) from 2008. Increases in energy-related methane emissions—largely from underground coal mining—were offset by decreases in emissions from agricultural sources. Methane emissions from waste management systems rose by 7 MMTCO₂e, while industrial emissions declined by 0.4 MMTCO₂e.

Emissions of nitrous oxide dropped by 4 MMTCO₂e (1.7 percent) to 220 MMTCO₂e. The decrease came mainly from a reduction in energy-related emissions, as well as declines in industrial-related and agricultural nitrous oxide emissions.

Based on a partial estimate, U.S. emissions of high-GWP gases totaled 178 MMTCO₂e in 2009—8 MMTCO₂e (4.9 percent) above the 2008 level. Emissions of hydrofluorocarbons (HFCs) rose by 7 MMTCO₂e (5.4 percent) from 2008 to 2009.

Figure Data

1.2. Energy-related carbon dioxide emissions by fuel and end use

Energy-related CO₂ emissions dominate total U.S. greenhouse gas emissions ([Figure 1](#)). The figures below show the shares of energy-related CO₂ emissions accounted for by major energy fuels and by energy sectors.

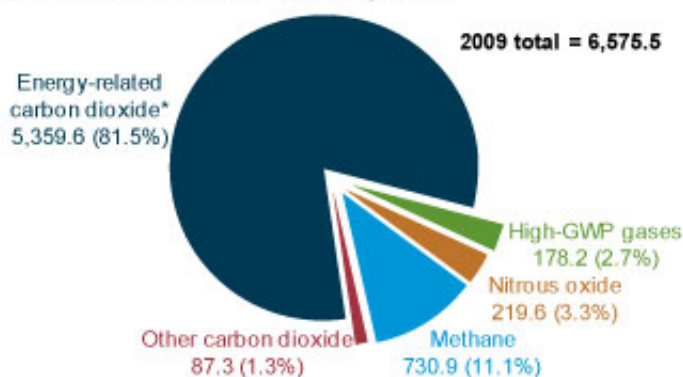
Petroleum is the largest fossil fuel source for energy-related CO₂ emissions, contributing 43 percent of the total ([Figure 2](#)).

Figure Data

Coal is the second-largest fossil fuel contributor, at 35 percent. Although coal produces more CO₂ per unit of energy produced

Figure 1. U.S. greenhouse gas emissions by gas, 2009

million metric tons carbon dioxide equivalent



than petroleum does (i.e., coal has a higher carbon intensity than petroleum), petroleum consumption—in terms of British thermal units (Btu)—made up 45.0 percent of total fossil fuel energy consumption in 2009, as compared with coal's 25 percent.

Natural gas, with a carbon intensity that is about 55 percent of the carbon intensity of coal and 75 percent of the carbon intensity of petroleum, accounted for 30 percent of U.S. fossil energy use in 2009 but only 22 percent of total energy-related CO₂ emissions.

In Figure 3, emissions are divided into three categories: emissions from the direct use of fossil fuels in homes (for example, natural gas for heating), commercial buildings, and industry; emissions from fuel use for transportation (principally, petroleum); and emissions from the conversion of primary energy to electricity in the electric power sector.

U.S. greenhouse gas emissions, 1990, 2005, 2008, and 2009

	1990	2005	2008	2009
Estimated emissions (million metric tons CO ₂ e)	6,133.2	7,109.4	6,983.1	6,575.5
Change from 1990 (million metric tons CO ₂ e)		976.1	849.8	442.3
(percent)		15.9%	13.9%	7.2%
Average annual change from 1990 (percent)		1.0%	0.7%	0.4%
Change from 2005 (million metric tons CO ₂ e)			-126.3	-533.8
(percent)			-1.8%	-7.5%
Change from 2008 (million metric tons CO ₂ e)				-407.5
(percent)				-5.8%

Figure Data

The electric power sector is the largest source, accounting for 40 percent of all energy-related CO₂ emissions. The electric power sector consists of those entities whose primary business is the production of electricity.

The transportation sector is the second-largest source, at 34 percent of the total. Those emissions are principally from the combustion of motor gasoline, diesel fuel, and jet fuel.

Direct fuel use in the residential and commercial sectors (mainly for heating) and the use of fuels to produce process heat in the industrial sector together accounted for 26 percent of total CO₂ emissions in 2009.

1.3 Decomposition of U.S. greenhouse gas changes

While the U.S. economy declined by 2.6 percent in 2009, a 5.8-percent decrease in total greenhouse gas emissions meant that U.S. greenhouse gas intensity decreased by 3.3 percent from 2008 to 2009.

Because energy-related CO₂ is such a large component of

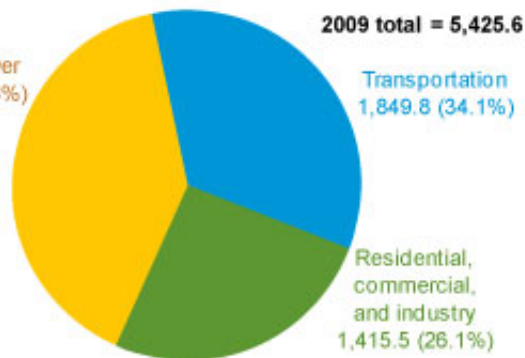
greenhouse gas emissions, it is helpful to analyze energy-related CO₂ emissions by using an equation known as the Kaya identity. The Kaya identity relates percent changes in energy-related CO₂ emissions to changes in the economy through the following approximation:

$$\% \Delta \text{CO}_2 \approx \% \Delta \text{GDP} + \% \Delta (\text{Energy}/\text{GDP}) + \% \Delta (\text{CO}_2/\text{Energy})$$

where $\% \Delta$ represents percentage change.

Figure 3. U.S. energy-related carbon dioxide emissions by sector, 2009

million metric tons carbon dioxide



As indicated in Figure 4, energy-related CO₂ emissions have declined in every year since 2005, with the exception of 2007. Although this is not a long period of time, it is instructive to examine the reasons for the change in trend as compared with the period from 1990 to 2005. A lower rate of economic growth from 2005 to 2009 (averaging 0.5 percent per year, as compared with the average of 3.1 percent per year from 1990 to 2005) is a key driver of the changing trend in emissions.

Figure Data

Over both periods, the energy intensity of the economy declined by an average of 1.9 percent per year, as the trend toward a service-oriented, post-industrial U.S. economy continued. In contrast, a drop in the carbon intensity of the U.S. energy supply may represent a new trend: from 1990 to 2005, carbon intensity increased on average by 1.0 percent per year, but from 2005 to 2009 it fell by an average of 1.9 percent per year, as natural gas was increasingly substituted for coal, and renewable electricity generation continued to grow. In combination, these factors resulted in a 7.1-percent decline in energy-related CO₂ emissions from 2008 to 2009 (Table 2).

1.4. Greenhouse gas emissions in the U.S. economy

Figure 5 illustrates the flow of U.S. greenhouse gas

emissions in 2009, from their sources to their end uses. The left side shows CO₂ quantities by fuel sources and quantities for other gases; the right side shows their distribution by sector. The center of the diagram indicates the split between CO₂ emissions from direct fuel combustion and those from electricity conversion. Adjustments indicated at the top of the diagram for U.S. territories and international bunker fuels correspond to greenhouse gas reporting requirements developed by the United Nations Framework Convention on Climate Change (UNFCCC) (see also Table 3).

Figure 5. Greenhouse gas emissions in the U.S. economy

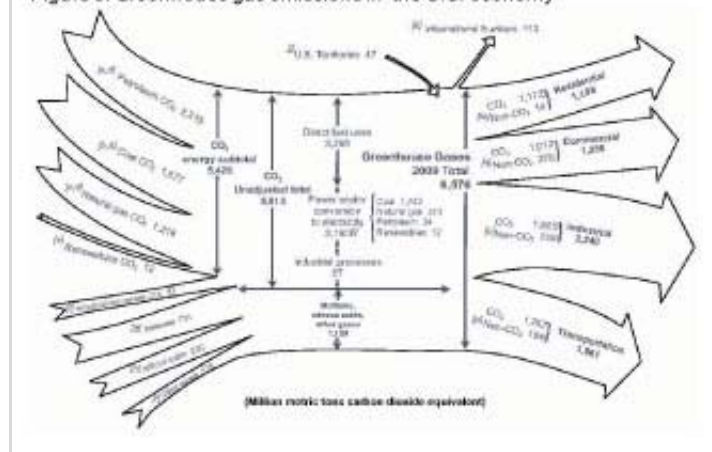


Diagram notes

CO₂. CO₂ emission sources include energy-related emissions (primarily from fossil fuel consumption) and emissions from industrial processes. The energy subtotal (5,426 MMTCO₂e) includes petroleum, coal, and natural gas consumption and smaller amounts from nonbiogenic municipal solid waste and some forms of geothermal power generation. The energy subtotal also includes emissions from nonfuel uses of fossil fuels, mainly as inputs to other products. Industrial process emissions (87 MMTCO₂e) include CO₂ stripped from natural gas and flared natural gas, cement manufacture, limestone and dolomite

calcination, soda ash manufacture and consumption, CO₂ manufacture, and aluminum production. The sum of the energy subtotal and industrial processes equals unadjusted CO₂ emissions (5,513 MMTCO₂e). The energy component of unadjusted

emissions can be divided into direct fuel use (3,265 MMTCO₂e) and fuel converted to electricity (2,160 MMTCO₂e).

Non-CO₂ gases. Methane (731 MMTCO₂e) and nitrous oxide (220 MMTCO₂e) sources include emissions related to energy, agriculture, waste management, and industrial processes. High-GWP gases (178 MMTCO₂e) include hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). These gases have a variety of uses in the U.S. economy, including as refrigerants, insulators, solvents, and aerosols; as etching, cleaning, and firefighting agents; and as cover gases in various manufacturing processes.

Adjustments. In keeping with the UNFCCC, CO₂ emissions from U.S. Territories (47 MMTCO₂e) are added to the U.S. total, and CO₂ emissions from fuels used for international transport (both oceangoing vessels and airplanes) (113 MMTCO₂e) are subtracted to derive total U.S. greenhouse gas emissions (6,576 MMTCO₂e).

Emissions by end-use sector. CO₂ emissions by end-use sector are based on EIA's estimates of energy consumption (direct fuel use and purchased electricity) by sector and on the attribution of industrial process emissions by sector. CO₂ emissions from purchased electricity are allocated to the end-use sectors, based on their shares of total electricity sales. Non-CO₂ gases are allocated by direct emissions in those sectors plus emissions in the electric power sector that can be attributed to the end-use sectors on the basis of electricity sales.

Residential emissions (1,186 MMTCO₂e) include energy-related CO₂ emissions (1,172 MMT) and non-CO₂ emissions (14 MMTCO₂e). The non-CO₂ sources include methane and nitrous oxide emissions from direct fuel use. Non-CO₂ indirect emissions attributable to purchased electricity, including methane and nitrous oxide emissions from electric power generation and SF₆ emissions related to electricity transmission and distribution, are also included.

Commercial emissions (1,288 MMTCO₂e) include both energy-related CO₂ emissions (1,012 MMT) and non-CO₂ emissions (276 MMTCO₂e). The non-CO₂ emissions include direct emissions from landfills, wastewater treatment plants, and commercial refrigerants, and emissions of methane and nitrous oxide from stationary combustion. Non-CO₂ indirect emissions attributable to purchased electricity, including methane and nitrous oxide emissions from electric power generation and SF₆ emissions related to electricity transmission and distribution, are also included.

Industrial emissions (2,240 MMTCO₂e) include CO₂ emissions (1,505 MMT)—which can be broken down between combustion (1,418 MMT) and process emissions (87 MMT)—and non-CO₂ emissions (735 MMTCO₂e). The non-CO₂ direct emissions include emissions from agriculture (methane and nitrous oxide), coal mines (methane), petroleum and natural gas pipelines (methane), industrial process emissions (methane, nitrous oxide, HFCs, PFCs, and SF₆), and direct stationary combustion emissions of methane and nitrous oxide. Non-CO₂ indirect emissions attributable to purchased electricity, including methane and nitrous oxide emissions from electric power generation and SF₆ emissions related to electricity transmission and distribution, are also included.

Transportation emissions (1,861 MMTCO₂e) include energy-related CO₂ emissions from mobile source combustion (1,757 MMT) and non-CO₂ emissions (104 MMTCO₂e). The non-CO₂ emissions include methane and nitrous oxide emissions from mobile source combustion and HFC emissions from the use of refrigerants for mobile source air-conditioning units.

1.5. U.S. emissions in a global perspective

Total U.S. energy-related CO₂ emissions in 2007 (including nonfuel uses of fossil fuels) are estimated at 6,022 MMT—about 20 percent of the 2007 world total for energy-related CO₂ emissions, estimated at 29,728 MMT ([Table 4](#)).

CO₂ emissions related to energy use in the mature economies of countries that are members of the Organization for Economic Cooperation and Development (OECD)—including OECD North America, OECD Europe, Japan, South Korea, and Australia/New Zealand—were estimated at 13,711 MMT in 2007, or 46 percent of the world total, with the remaining 54 percent

of worldwide energy-related CO₂ emissions (16,017 MMT) estimated to have come from non-OECD countries (Figure 6).

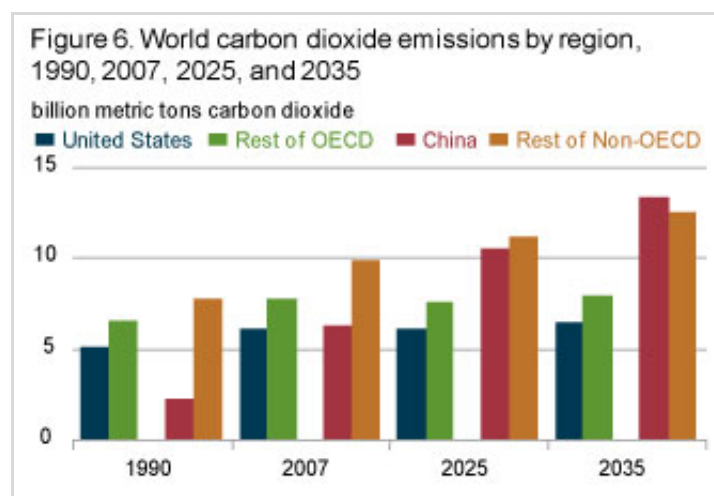


Figure Data

In EIA's *International Energy Outlook 2010 (IEO2010)* Reference case, projections of energy use and emissions are sensitive to economic growth rates and energy prices. Projections for a range of alternative growth and price scenarios are presented in *IEO2010*.

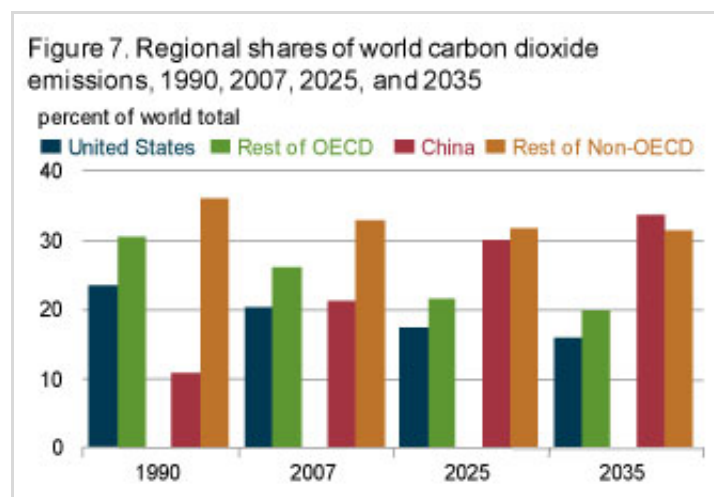
U.S. energy-related CO₂ emissions are projected to increase by an average of 0.2 percent per year from 2007 to 2035 in the *Annual Energy Outlook 2011 (AEO2011)* Reference case, while emissions from the non-OECD economies (*IEO2010* Reference case) grow by 1.7 percent per year. Both rates are lower than previous projections as a result of the 2008-2009 global recession and newly enacted energy policies. Consequently, the U.S. share of world CO₂ emissions is projected to fall to 15.8 percent (6,320 MMT out of a global total of 39,975 MMT) in 2035 (Figure 7).

World energy-related carbon dioxide emissions, 1990, 2005, 2007, and 2035

	1990	2005	2007	2035
Estimated emissions (million metric tons)	21,537	28,329	29,728	42,386
Change from 1990 (million metric tons)		6,793	8,191	20,849
(percent)		31.5%	38.0%	96.8%
Average annual change from 1990 (percent)		1.8%	1.9%	1.7%
Change from 2005 to 2035 (million metric tons)				14,057
(percent)				49.6%
Annual average change from 2005 to 2035 (percent)				1.4%

Figure Data

China's share of global energy-related CO₂ emissions is projected to grow from 21 percent in 2007 to 31 percent in 2035, and China accounts for 56 percent of the projected increase in world emissions over the period. India accounts for the second-largest share of the projected increase, 7 percent.



1.6. Recent U.S. and international developments in global climate change

United States: Federal actions

U.S. Environmental Protection Agency

Rules for Mandatory Reporting of Greenhouse Gases by 31 industries and emissions sources were finalized by the U.S. Environmental Protection Agency (EPA) in October 2009.¹ Final rules and methods were proposed in April 2010 for a second group of industries: oil and natural gas systems; five

industries that emit fluorinated greenhouse gases (GHGs); and facilities that inject and store CO₂ underground for the purposes of geologic sequestration or enhanced oil and gas recovery. The rules were finalized in November and December 2010, with data collection for this second group beginning in January 2011. Reporting rules for the remaining sources from the original proposed rule that were not finalized in October 2009 were finalized in June 2010. This batch of final rules included magnesium production, underground coal mines, industrial wastewater treatment, and industrial landfills. However, the EPA has not acted to finalize the proposed rules for ethanol production, food processing, and coal suppliers.

In December 2009, the EPA issued its final endangerment and cause or contribute findings for greenhouse gas emissions from light-duty vehicles, classifying them as a danger to public health and welfare. As a result, the EPA and the U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA), in April 2010, jointly published Corporate Average Fuel Economy (CAFE) and GHG emissions standards to regulate emissions from light-duty vehicles of model years 2012-2016.

In May 2010, a Presidential memo declared that the rulemaking to set standards for light-duty vehicles of model years 2017-2025 would begin, and also directed the EPA and NHTSA for the first time to draft efficiency rules for medium- and heavy-duty engines and vehicles.² A Notice of Intent to conduct a joint rulemaking on light-duty vehicles for model years 2017-2025, which includes the Agencies' initial assessment of a potential future standard, was released in September 2010.³ Proposed rules covering model years 2014-2018 were announced in October 2010. Also in May 2010, the EPA published its Tailoring Rule, which details the Agency's plans to begin regulating GHG emissions from large industrial GHG sources, including power generation facilities, industrial boilers, and oil refineries.⁴ The EPA began requiring Clean Air Act (CAA) permits for stationary GHG sources under the Prevention of Significant Deterioration (PSD) requirements of the CAA in January 2011.⁵ In August 2010, the EPA announced plans to amend or take over State permitting operations in cases where the State Implementation Plan (SIP) for PSD permitting did not adequately address GHG emissions, as would be required by the CAA.⁶

Other Federal agencies and offices

Implementation of Executive Order 13514 (EO 13514). The White House Council on Environmental Quality (CEQ) and DOE's Federal Energy Management Program (FEMP) developed guidance and calculation methodologies for Federal agencies to conduct and report their GHG inventories under the requirements of EO 13514, Federal Leadership in Environmental, Energy, and Economic Performance (October 5, 2009). The final guidelines for FY 2008 and FY 2010 inventory submissions were published in October 2010. CEQ and FEMP will continue to update the guidelines and methodologies to cover additional emissions sources and provide improved calculation methods for future inventory years. Individual agencies submitted their Strategic Sustainability Performance Plans in June 2010, detailing their strategies to help reach the overall Federal Government-wide goal to reduce Scope 1 and 2 emissions by 28 percent and Scope 3 emissions by 13 percent.⁷

New home appliance efficiency standards agreement. In August, a coalition of energy and water efficiency and consumer advocacy groups, along with major home appliance manufacturers and their industry association, announced an agreement to increase the efficiency of Energy Star home appliances and to seek tax credits for the production of super-efficient appliances.

American Recovery and Reinvestment Act. As of September 30, 2010, the close of the government's fiscal year 2010, DOE had used \$35.2 billion in Recovery Act appropriations and \$7.5 billion in Treasury tax incentive programs to support more than \$100 billion in clean energy projects. This funding went to support more than 8,000 projects across the country, selected from among more than 30,000 applications.⁸

United States: Regional and State initiatives

Regional GHG initiatives. The Western Climate Initiative (WCI) consists of seven western U.S. member States, four Canadian member provinces, and an additional 14 observing States and provinces in the United States, Canada, and Mexico. The U.S. member States hold 19 percent of the total U.S. population and produce 20 percent of U.S. GDP.⁹ In July 2010, WCI released its comprehensive design strategy, which outlines its plan to reduce regional GHG emissions to 15 percent below 2005 levels by 2020.

State energy and GHG legislation. A number of new energy efficiency, renewable energy, and climate change laws were enacted in States across the country in 2010,¹⁰ including: RPS amendments (Maryland increased its solar carve-out, and Colorado increased its solar energy target to 30 percent of total energy production by 2020); an ocean energy development goal (Maine); electric vehicle incentives (Maryland); a carbon tax (Montgomery County, Maryland); a low carbon fuel standard for vehicle fuels (California); energy efficiency standards for utilities (Massachusetts) and for new commercial buildings (California); smart grid policy development (Maine); and planning for reductions in GHG emissions from the transportation

sector (Oregon).

In July 2010, the Governors of Rhode Island and Massachusetts signed a Memorandum of Understanding (MOU) on the development of offshore wind energy facilities in the Federal waters off of their coasts. The MOU requires that the States coordinate and collaborate on wind energy efforts in an "area of mutual interest" in their overlapping shared waters.¹¹

International actions

UNFCCC and the Kyoto Protocol

The 15th Conference of the Parties (COP-15) and 5th Meeting of the Parties to the Kyoto Protocol (CMP-5) were held in Copenhagen, Denmark, in December 2009. The main product of the meetings was the Copenhagen Accord, which had been agreed to by 140 of the 192 UNFCCC nations as of November 2010.¹² The Accord is a non-binding statement pledging action on:

- A goal to limit global warming to 2 degrees Celsius
- Submission of mitigation goals by individual nations
- Funding \$30 billion in "new and additional" financing for mitigation, adaptation, technology development, and capacity building in developing nations over the 2010-2012 period, increasing to \$100 billion per year by 2020
- Reporting and verification of national inventories and mitigation actions
- Establishment of a mechanism to use developed country financing in support of efforts to reduce emissions from deforestation and forest degradation and to enhance carbon sinks.

COP-16 and CMP-6 convened from November 29 through December 10, 2010, in Cancun, Mexico. The Parties adopted a package of agreements that reaffirms and builds upon the Copenhagen Accord of 2009. The Cancun Agreements¹³ include the following actions:

- Reaffirm the Accord's goal to limit global average temperature rise to 2 degrees Celsius above pre-industrial levels
- Formally recognize the reduction pledges made in the Copenhagen Accord for the first time by "taking note" of the pledges made by both developed and developing nations
- Indicate that the Clean Development Mechanism (CDM) and Joint Implementation, by which Annex I nations may use non-Annex I mitigation projects to offset their emissions, will continue beyond 2012
- Create a new "standardized baseline" process for some types of CDM projects
- Set out a reporting framework that continues annual submission of inventories by developed nations and creates a new registry for developing nations to report on mitigation actions that receive international financing and includes general guidelines for reporting autonomous actions
- Provide a framework to develop financing and other policies to Reduce Emissions from Deforestation and Degradation (REDD+) and call upon developing nations to develop national strategies and reference levels for future efforts to reduce deforestation
- Establish the World Bank as interim trustee of The Green Climate Fund, which seeks to raise \$100 billion per year from public and private sources by 2020 to support greenhouse gas mitigation efforts in developing countries
- Set up the Cancun Adaptation Framework to formalize and outline efforts to enhance adaptation activities by all UNFCCC members
- Establish the Technology Mechanism to assist developing countries with identification, transfer, and application of appropriate low-carbon technologies.

Montreal Protocol

The United States, Canada, and Mexico continued to move forward with their proposal, first announced in 2009, to amend the Montreal Protocol to include a binding schedule for phasing down production and consumption of 20 hydrofluorocarbons (HFCs). The proposal calls for developed countries to reduce their production and consumption of the 20 HFCs to 15 percent of

a 2004-2006 average baseline by 2033, and for developing nations to meet the same level by 2043. The proposal was considered at the 22nd Meeting of the Parties to the Montreal Protocol in Bangkok in November. The United States, Canada, and Mexico also offered a proposal to increase project-based efforts to control emissions from HFC-23 and HCFC-22 production.¹⁴ (For more information on domestic efforts to reduce emissions of high-GWP gases, see Chapter 5.)

Major Economies Forum

The 6th, 7th, and 8th Meetings of the Leaders' Representatives to the Major Economies Forum on Energy and Climate Change convened during 2010.¹⁵ Representatives of the 17 major economies, the United Nations, and guest smaller nations discussed the path forward after COP-15 in Copenhagen and toward COP-16 in Cancun. Discussions centered around further development of the Copenhagen Accord and goals for progress in Cancun, including an emphasis on monitoring, reporting, verification, and transparency; quick implementation of the Accord's Fast Start Financing provisions; the future of the Kyoto Protocol; and different notions of equity. Separately, a Clean Energy Ministerial meeting track was launched to advance initiatives related to energy supply, energy efficiency, and energy access. The Ministerial met in July to develop steps toward accelerated deployment of clean energy technologies and will meet again in April 2011 in Abu Dhabi.¹⁶

Bilateral and multilateral agreements

The U.S. State Department signed two memoranda of understanding (MOU) in 2010 related to cooperation on greenhouse gas emissions. In March, the United States signed an MOU with Brazil establishing a "Climate Change Policy Dialogue," which aims to increase cooperation between the two nations on energy efficiency, capacity building, and combating deforestation.¹⁷ In July, the United States and China signed an MOU to cooperate in the development of clean energy and energy efficiency technologies and engage in a policy dialog.¹⁸

1.7. Special topic: Energy and carbon initiatives at the U.S. Department of Energy

Under EO 13514, all Federal Government agencies are required to develop integrated sustainability plans that include greenhouse gas emission reductions; efficient water use; waste reduction and pollution prevention; and increased efficiency in buildings, products, and vehicle fleets.¹⁹ At the U.S. Department of Energy (DOE), the mission of the Federal Energy Management Program (FEMP) is to facilitate the Federal Government's implementation of sound, cost-effective energy management and investment practices in order to enhance the Nation's energy security and environmental stewardship. Serving its mission, FEMP assists DOE and other agencies in planning and implementing strategies to achieve conservation, efficiency, and renewable energy goals under EO 13514 and other mandates.

DOE has more than 15,000 Federal employees in offices and laboratories around the country. Under the EO 13514 requirement to quantify Agency GHG emissions, DOE calculated a fiscal year (FY) 2008 baseline of 5 MMTCO₂e and established a goal of a 28-percent absolute reduction in its emissions by 2020.²⁰

In October 2010, FEMP released its *Annual GHG and Sustainability Data Report, Version 1.0* to coincide with the release of the *Federal Greenhouse Gas Accounting and Reporting Guidance and Technical Support Document by the White House Council on Environmental Quality*. The documents and reporting tool aid Federal agencies in gauging their progress toward goals set under EO 13514 by providing guidance and the means for the necessary data collection.²¹ The Data Report includes reporting requirements for facility and operational energy and water use, as well as calculation of Federal fleet fuel use, fulfilling previous FEMP requirements. FEMP will continue to release updated versions of the Data Report to aid agencies in realizing their EO 13514 goals. Notable initiatives contributing to DOE's efforts to achieve EO 13514 goals are described below.

DOE Headquarters facilities

DOE Headquarters (HQ) is located in the James Forrestal building in downtown Washington, DC, and in Germantown, MD. The HQ facilities house more than 5,800 of the Agency's Federal and contract employees. Initiatives to increase energy savings and efficiency at DOE HQ buildings include the following.

Solar array

Installed on the roof of the Forrestal building in September 2008, the solar array generates about 235,000 kilowatthours of electricity per year. The array is also important for technology demonstration and testing purposes. In addition to the main configuration, the array contains several examples of solar panel technologies, along with monitoring stations to measure power generation in relation to weather conditions.

Energy savings

In December 2009, DOE entered into an Energy Savings Performance Contract (ESPC) involving a large-scale HQ retrofit project. An ESPC allows DOE to finance the project with minimal initial cost, because the installation costs will be offset by monetary savings associated with reduced resource consumption.²² The project focuses on reducing energy consumption in the Forrestal building and water consumption at the Germantown facilities. Construction is scheduled to be completed by December 2011. The efforts are expected to result in reductions of energy consumption by 22 percent at the Forrestal building and water consumption by 11 percent in Germantown. In spring 2010, the Forrestal corridor lighting system was rewired to allow for all lights, with the exception of emergency lighting, to be turned off during night and weekend hours. This upgrade should reduce energy consumption by about 280,000 kilowatthours per year.

Forrestal west and south buildings cool roofs

DOE has completed a "cool roof" on the cafeteria and plans to complete one for the south building at the Forrestal complex over the summer of 2011. The project includes roof engineering designs that will reflect sunlight and emit heat more efficiently than existing roofs, reducing energy consumption and costs associated with summertime cooling. It also includes solar hot water heating for the cafeteria, energy savings and life-cycle cost evaluation, and other technical and economic analyses.

Other notable DOE projects

During December 2009, DOE awarded 16 new Energy Savings Performance Contracts (ESPCs), including the following.

Savannah River Biomass Steam Plant, Aiken, South Carolina

DOE's Savannah River Biomass Steam Plant is one of the largest of its kind. Originally powered by coal-burning boilers, the project, financed by an ESPC, has replaced the original boilers with two steam boilers powered by the combustion of woody biomass. These upgrades are estimated to save \$34 million a year in fuel, operations, and maintenance costs.

Existing Building Assessment Tool

In 2009, DOE continued to use the Existing Building Assessment Tool (EBAT), part of the High Performance Sustainable Building Assessment Tool. EBAT aids in identifying and prioritizing sustainability projects for retrofitting DOE's building stock with energy-efficient technologies.²³ DOE's building portfolio currently includes 20 Leadership in Energy and Environmental Design (LEED) certified buildings. LEED is an internationally recognized green building certification system, which verifies that a building was designed and constructed to improve energy savings, CO₂ emission reductions, and other environmental factors.²⁴ The assessment tool is being used to identify candidate projects that would enable additional buildings to gain certification.

National Renewable Energy Laboratory, Golden, Colorado

DOE's National Renewable Energy Laboratory (NREL) facility in Golden, Colorado, has begun efforts to achieve net-zero energy consumption. Part of the initiative includes "greening" its data center by consolidating servers from 250 to 50, arranging servers to enable more efficient air flow, and using more energy-efficient methods to cool the air around servers. The efforts will reduce power consumption at the data center by 65 percent.²⁵

Future DOE projects

Data center acceleration campaign

DOE is planning a \$2.5 million strategic energy efficiency plan for its information technology infrastructure. The plan emphasizes 41 data centers. FEMP projects a 30-percent energy savings through the implementation of existing technologies under the initiative.²⁶

Biomass generation plant at Oak Ridge, Tennessee

DOE's research facilities in Oak Ridge, Tennessee, will house a biomass steam generation plant, scheduled to be operational in 2011. The project replaces four natural-gas-fired boilers and will eliminate more than 55,000 metric tons of carbon dioxide emissions each year, in addition to reductions in nitrogen oxide and sulfur dioxide emissions.²⁷

1.8. Units for measuring greenhouse gases

Emissions data are reported here in metric units. Metric tons are relatively intuitive for users of U.S. measurement units, because 1 metric ton is only about 10 percent heavier than a short ton.

Throughout this report, emissions of carbon dioxide and other greenhouse gases are given in carbon dioxide equivalents. In the case of carbon dioxide, emissions denominated in the molecular weight of the gas or in carbon dioxide equivalents are the same. Carbon dioxide equivalent data can be converted to carbon equivalents by multiplying by 12/44.

Emissions of other greenhouse gases (such as methane) can also be measured in carbon dioxide equivalent units by multiplying their emissions (in metric tons) by their global warming potentials (GWPs). Carbon dioxide equivalents are the amount of carbon dioxide by weight emitted into the atmosphere that would produce the same estimated radiative forcing as a given weight of another radiatively active gas.

Carbon dioxide equivalents are computed by multiplying the weight of the gas being measured (for example, methane) by its estimated GWP (which is 25 for methane). As indicated in [Table 5](#), the GWP for methane was estimated at 21 in the second scientific assessment and 23 in the third. These changes reflect enhanced knowledge, through climate research, of methane's radiative efficiency. Also, as the level of carbon dioxide in the atmosphere increases, it becomes marginally less potent as a greenhouse gas. Consequently, other gases with lower atmospheric concentrations are relatively more potent. In 2008, the IPCC Working Group I released Errata to its Fourth Assessment Report, *Climate Change 2007: The Physical Science Basis*.²⁸ The Errata revise the reported GWPs for a small number of high-GWP gases. The GWPs published in the Errata to the Fourth Assessment Report (AR4) were used in the calculation of carbon dioxide equivalent emissions for this report. [Table 5](#) summarizes the GWP values from the Second, Third, and Fourth Assessment Reports.

1.9. Methodology updates for this report

Carbon dioxide

Revised coal and motor gasoline carbon factors have been adopted, based on work done by the U.S. EPA.²⁹

For the first time, EIA is providing estimates of biogenic CO₂ emissions from biofuels and bioenergy, based on energy consumption data from EIA's *Monthly Energy Review (MER)*. The estimates are provided in Chapter 6 for informational purposes and are not included in the total emissions estimate, because they are considered to be part of the natural carbon cycle and so are excluded under UNFCCC guidelines.

Methane

Styrene has been dropped as a source of CH₄ emissions from the chemicals industry, based on guidance from the 2006 IPCC guidelines. Those emissions have been removed from all years of this inventory.

CH₄ emission factors for passenger cars and light-duty vehicles have been revised to the values published in the 2006 IPCC guidelines, resulting in a significant decline in calculated emissions from this source category from 1990 to 2008.

Updates have been made to the specificity of the calculations used to estimate emissions from the production and management of manure, including conducting a State-level analysis of swine manure emissions for the first time. In addition, sheep populations have been separated into those on feedlots and those not on feedlots; and populations of pullets, other chickens, and turkeys have been included in the poultry account for the first time. These updates also affect the estimation of N₂O emissions from manure management.

Changes in livestock population data that are used to derive the emissions factors for calculating CH₄ emissions from enteric fermentation resulted in an average increase in emissions of 3 percent over the series.

Additional emissions factors, conversion factors, and constants applied to the calculation of emissions related to agriculture and livestock have been updated on the basis of the most recent values published by the EPA or IPCC, as applicable.

For the first time in this report, CH₄ emissions from composting and from the combustion of waste are included in the inventory.

Nitrous oxide

Emissions calculations methodologies for direct and indirect emissions of N₂O from nitrogen fertilization of agricultural soils and from runoff of fertilizer and manure applied to soils have been revised to align more completely with methods in the 2006 IPCC guidelines. Most notably, the revised IPCC methodology, which accounts for nitrogen in below-ground crop residues but omits biological fixation of nitrogen, has been implemented for the 2009 inventory.

Emissions resulting from manure that is directly deposited on lands by grazing or pasture-raised animals have been transferred from the manure management category to the agricultural soils category, and new sources of indirect emissions from soil leaching and volatilization have been included in nitrogen fertilization of soils.

The specificity of direct and indirect emissions from manure management has been improved by implementing State-level calculation of swine emissions and updating the waste management system distributions for dairy cattle and swine to annually variable State-level values.

N₂O emission factors for passenger cars and light-duty vehicles have been revised to the values published in the 2006 IPCC guidelines, resulting in a significant decline in calculated emissions from this source category from 1990 to 2008.

Emissions estimates for 2007 and 2008 have been corrected to account for the 2006 closing of the smallest adipic acid plant in the United States, which was the only remaining plant that did not use abatement technology. Also, the N₂O emission factor for adipic acid production has been revised to the value published in the 2006 IPCC guidelines.

For the first time in this report, N₂O emissions from composting are included in the inventory.

High-GWP gases

Data for 2009 covering the use or production of HFCs, PFCs, and SF₆ in industrial applications are not yet available for inclusion in the 2009 GHG inventory. To obtain a total, the 2008 values for those emissions were used. Draft estimates for emissions of HFC and PFC substitutes for ozone-depleting substances are included in Chapter 5. Complete final estimates of those emissions will be available in the EPA's 2009 inventory of greenhouse gas emissions and sinks, to be published in April 2011.³⁰

1.10. Special topic: Beyond carbon dioxide—reducing emissions of black carbon to achieve near-term results

What is black carbon?

Black carbon is an aerosol component of particulate matter formed through the incomplete combustion of fossil fuels, biofuels,

and biomass. It is found in both anthropogenic (human-caused) and naturally occurring soot. The science and understanding of black carbon have evolved rapidly over the past decade. This has drawn attention to black carbon's contribution to climate change. Globally, the primary sources of black carbon include emissions from diesel engines, cook stoves, wood fires, and forest fires. In contrast with CO₂, which has an atmospheric lifetime of more than 100 years, black carbon remains in the atmosphere for only a few weeks. Therefore, reducing black carbon emissions may be an effective way to slow climate change in the short term. The 20-year GWP of black carbon is estimated at 2,200, with a 100-year GWP of 680.³¹ Because of its relatively short atmospheric lifetime, the 20-year GWP is considered a more accurate estimate of the climate impact of black carbon emissions.

Black carbon contributes to changes in the atmosphere in two ways. First, when it is suspended in the air it absorbs sunlight and generates heat and can affect regional cloud formation and precipitation patterns, which may have a cooling effect. Second, when deposited on snow and ice, it absorbs sunlight, generating heat and counteracting the usual reflective (cooling) effects of pure snow, thus warming both the air above and the snow and ice below, accelerating melting, and further reducing the reflective power of snow and ice cover. Its warming effects in the polar regions are of particular concern.

In 2010, in the Department of the Interior, Environment and Related Agencies Appropriations Act, the U.S. Congress allocated money for the EPA to conduct a study of black carbon emissions and their possible effects on climate change. The study is due to be published in April 2011.³²

Regional sources of black carbon emissions

Since 1950, the United States, Europe, and the former Soviet Union have significantly reduced black carbon emissions from fossil fuel sources.³³ U.S. emissions of black carbon—measured as elemental carbon—are estimated to have fallen by 30 percent from 1990 to 2005, when they made up about 6 percent of total world black carbon emissions.³⁴ The primary source of black carbon emissions in the United States is mobile combustion (vehicle fuels), and 90 percent of emissions in this category are from diesel fuel use. Figure 8 shows a breakdown of U.S. black carbon emissions sources in 2001 and projections for 2020. After mobile emissions, biomass combustion is the second-largest source of black carbon emissions in the United States, and its share of the total is expected to grow as diesel emissions continue to be reduced.

Technology has played a major role in reducing black carbon emissions. Important technologies include filters placed in diesel vehicle engines to capture the emissions, fuel switching (e.g., from diesel to natural gas in buses), and cleaner-burning, more efficient cook stoves in developing nations. Today, the majority of black carbon emissions come from developing countries.³⁵ The leading emitters are Asia, Latin America, and Africa.³⁶ China and India, in particular, are responsible for more than one-fourth of global black carbon pollution.³⁷ Significant sources of biomass-related emissions in the developing world include deforestation by burning, wildfires, and savannah burning.³⁸

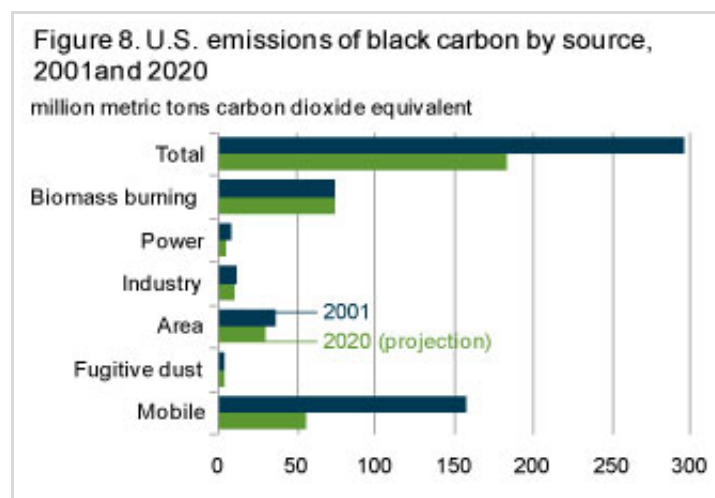


Figure Data

Reducing emissions of black carbon

The United States does not have any regulations in force that are directly aimed at reducing black carbon emissions. However, some States have included black carbon emissions and corresponding reduction strategies in their Climate Action Plans.³⁹ Also, Federal rules developed to address particulate matter, a class of criteria pollutant under the Clean Air Act, and smog-forming nitrogen oxide from engines and stationary sources have the added effect of reducing black carbon emissions. Key regulations in effect

include National Ambient Air Quality Standards (NAAQS) for airborne particulates, the Clean Air Highway Diesel Rule (2001), the Diesel Emissions Reduction Act (2005), and the Clean Air Visibility Rule (2005).⁴⁰ These regulations typically require the use of emission control technologies, such as particulate filters, to reduce emissions. The EPA estimates that the rules already finalized will lead to reductions in U.S. emissions of black carbon by 38 percent in 2020 from their 2001 baseline (Figure 8), primarily by achieving additional reductions in the mobile emissions sector.⁴¹ The 2020 projection assumes continued implementation of the Clean Air Nonroad Diesel Rule, the Clean Air Highway Diesel Rule, and the Clean Air Interstate Rule, among others. If all areas meet their NAAQS requirements for small-diameter particulate matter (PM_{2.5}), the reduction is projected to reach 42 percent, with total U.S. emissions of black carbon falling to 255,000 metric tons in 2020. The State of Maine estimates that the cost of reducing black carbon emissions through use of ultra-low-sulfur diesel (ULSD) and clean diesel technologies would be \$14 per ton CO₂e.⁴²

In December 2009, the United States pledged \$5 million in funding for the development and implementation of black carbon mitigation strategies for the Arctic.⁴³ The pledge came in the wake of the April 2009 Tromsø Declaration, in which the Arctic Council recognized the impacts of black carbon, methane, and other short-lived climate-forcing emissions on climate change in the Arctic.⁴⁴

International strategies to reduce emissions from deforestation, such as the Reducing Emissions from Deforestation and Forest Degradation (REDD) policies being discussed under the UNFCCC process, could also contribute to black carbon emissions reductions, particularly in the developing world.

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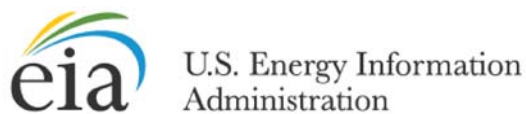
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Petroleum		Natural Gas		Coal	Electricity	Renewables	Total Energy	Indicators		Country	
CO2 Emissions	Carbon Intensity	Energy Intensity	Conversions	Population	Coal Prices	Electricity Prices	Petroleum Prices	Natural Gas Prices	Heat Content		
Country: <div>All Countries by Region</div>					Start Year: <div>2007</div>		End Year: <div>2011</div>		<div>UPDATE</div>		
Product: <div>Total Carbon Dioxide Emissions from the Consumption of Energy</div>					Unit: <div>Million Metric Tons</div>						
Total Carbon Dioxide Emissions from the Consumption of Energy (Million Metric Tons)							Units Conversion 		Download Excel 		
				2007	2008	2009	2010	2011			
North America				7,065,083	6,877,108	6,407,535	6,617,038	6,506,960			
Bermuda				0.751	0.750	0.712	0.699	0.777			
Canada				593,090	578,248	549,684	546,652	552,557			
Greenland				0.600	0.642	0.648	0.648	0.611			
Mexico				444,270	452,794	421,124	432,210	462,293			
Saint Pierre and Miquelon				0.089	0.092	0.089	0.089	0.091			
United States				6,026,284	5,844,582	5,435,279	5,636,739	5,490,631			
Central & South America				1,169,560	1,222,954	1,200,598	1,288,268	1,339,474			
Antarctica				0.245	0.264	0.245	0.072	0.137			
Antigua and Barbuda				0.631	0.659	0.666	0.666	0.732			

Footnotes:

-- = Not applicable
 (s) = Value is too small for the number of decimal places shown
 NA = Not available
 W = Data withheld to avoid disclosure
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Fuel Economy Program Reports

[» 2004 Report](#)
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CAFE - Fuel Economy

Corporate Average Fuel Economy (CAFE)

First enacted by Congress in 1975, the purpose of CAFE is to reduce energy consumption by increasing the fuel economy of cars and light trucks. NHTSA has recently set standards to increase CAFE levels rapidly over the next several years, which will improve our nation's energy security and save consumers money at the pump. This site contains an immense amount of information about the CAFE program including a CAFE overview, rulemaking actions, fleet characteristics data, compliance activities, summaries of manufacturers' fuel economy performances since 1978, and related studies.

LATEST NEWS

February 20, 2014: Proposed Rule Alternative Fuel Badging and Consumer Information

NHTSA is proposing to require badges, labels and owner's manual information for new passenger cars, low-speed vehicles (LSVs) and light-duty trucks rated at not more than 8,500 pounds gross vehicle weight, in order to increase consumer awareness regarding the use and benefits of alternative fuels.

This proposed rule would implement specific statutory mandates that manufacturers be required to: Identify each vehicle capable of running on an alternative fuel by means of a permanent and prominent display affixed to the exterior of the vehicle; add proposed text describing the capabilities and benefits of using alternative fuels to the owners' manuals provided for alternative fuel vehicles; and identify each vehicle that is capable of running on an alternative fuel by means of a label in the fuel filler compartment.

- [View or download a copy of the proposed rule](#)
- Please submit any comments on or before April 21, 2014, to docket number: [NHTSA-2010-0134](#)

February 18, 2014: Phase 2 of the DOT and EPA Fuel Efficiency and GHG Emission Program for Medium- and Heavy-Duty Vehicles announced

President Obama directs the National Highway Traffic Safety Administration (NHTSA) and the Environmental Protection Agency (EPA) to develop and issue the next phase ("Phase 2") of medium- and heavy-duty vehicle fuel efficiency and greenhouse gas (GHG) standards by March 2016. Under this timeline, the agencies are expected to issue a Notice of Proposed Rulemaking (NPRM) by March 2015. This second round of fuel efficiency standards will build on the first-ever standards for medium- and heavy-duty vehicles (model years 2014 through 2018).

- **FACT SHEET -- Opportunity For All: Improving the Fuel Efficiency of American Trucks - Bolstering Energy Security, Cutting Carbon Pollution, Saving Money and Supporting Manufacturing Innovation**
- **WHITE HOUSE REPORT -- Improving the Fuel Efficiency of American Trucks**
- More information on "Phase 1" is below

Phase 1 of Fuel Efficiency and GHG Emission Program for Medium- and Heavy-Duty Trucks, MYs 2014-2018

» [Technical Amendments](#)

» [Partial Withdrawal of Heavy-Duty Engine and Vehicle, and Nonroad Technical Amendments](#)

» [Heavy-Duty Engine and Vehicle, and Nonroad Technical Amendments](#)

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NHTSA Consumer Research on Fuel Economy, GHG and Alternative Fuels

Read the final reports and webinar presentation for focus groups and online surveys NHTSA conducted to inform development of a consumer education campaign.

» [Focus Groups Details and Results](#)

» [Online Survey Details and Results](#)

» [Webinar Materials on Research](#)

Requests for Product Plan Info

NHTSA periodically requests future product plan information from auto manufacturers to help the agency in its CAFE rulemaking analyses.

» [Current and past product plan requests](#)

Summary of Fuel Economy Performance

» [April 2013 Summary of Fuel Economy Performance](#)

» [Flexible Fuel Credits \(2003-2013\)](#)

» [Summary of CAFE fines \(Updated April 2013\)](#)

» [CAFE Credit Status for Models Year 2008 through 2011](#)

» [New Passenger Car Fleet Characteristics](#)

» [Domestic Passenger Car Fleet Characteristics](#)

» [Imported Passenger Car Fleet Characteristics](#)

» [Light Truck Fleet Characteristics](#)

» [2WD Light Truck Fleet Characteristics](#)

» [4WD Light Truck Fleet Characteristics](#)

» [Asian Imported Passenger Car Fleet Characteristics](#)

» [European Imported Passenger Car Fleet Characteristics](#)

» [Historical Passenger Car Fleet Characteristics](#)

[» Final Rule](#)

[» Final rule](#)

[» Correcting Amendments for Base Tire Definition](#)

[» Final Regulatory Impact Analysis](#)

[» Read the Aug. 9, 2011, News Release](#)

[» Fact Sheet](#)

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[» Environmental Impact Statements \(FEIS & DEIS\)](#)

[» Notice of Proposed Rulemaking](#)

[» Fact Sheet](#)

[» Correction Notice for Notice of Proposed Rulemaking](#)

[» Notice of Proposed Rulemaking](#)

[» Draft Regulatory Impact Analysis](#)

[» NHTSA Study: Factors and Considerations for Establishing a Fuel Efficiency
Regulatory Improvement Program for Commercial Medium- and Heavy-Duty Vehicles](#)

[» Notice of Public Hearings for Proposal on Nov. 15 & 18](#)

[» NAS Study: Technologies and Approaches to Reducing the Fuel Consumption of
Medium- and Heavy-Duty Vehicles](#)

[» Read the News Release](#)

NHTSA Holds Workshop on Vehicle Mass-Size-Safety

NHTSA conducted a workshop on May 13-14 on issues related to fuel economy, vehicle mass reduction and the effects of vehicle mass and size on vehicle safety.

[» Workshop Reports and Presentations](#)

[» Recap of February 2011 Workshop](#)

DOT and EPA Establish CAFE and GHG Emissions Standards for Model Years 2017 and Beyond

Following the direction set by President Obama on May 21, 2010, NHTSA and EPA have issued joint Final Rules for Corporate Average Fuel Economy and Greenhouse Gas emissions regulations for model years 2017 and beyond, that will help address our country's dependence on imported oil, save consumers money at the pump, and reduce emissions of greenhouse gases that contribute to global climate change.

[» Read the Aug. 28, 2012, News Release](#)

[» Final Rule \(Federal Register version\)](#)

[» Correction Notice for Final Rule, Part 536 \(Oct. 18, 2012\)](#)

[» Final Regulatory Impact Analysis \(FRIA\)](#)

[» Joint Technical Support Document \(TSD\)](#)

[» Environmental Impact Statements: Final \(July 2012\) & Draft \(Nov. 2011\)](#)

[» Fact Sheet](#)

[» CAFE Compliance and Effects Modeling System: The Volpe Model](#)

[» Other NHTSA Research Supporting the Final Rule](#)

[» Transcripts for Public Hearings in Detroit, Philadelphia, and San Francisco](#)

[» Documents Associated with the Dec. 2011 Proposal](#)

[» Documents Leading Up to the Proposal](#)

DOT and EPA Unveil New Fuel Economy Labels

NHTSA and EPA have jointly issued a final rule establishing new requirements for a fuel

economy and environment label that will be posted on the window sticker of all new automobiles sold in the U.S. The redesigned label provides expanded information to American consumers about new vehicle fuel economy and fuel consumption, greenhouse gas and smog-forming emissions, and projected fuel costs and savings, and also includes a smartphone interactive code that permits direct access to additional web resources. Click the link below for more information.

» [Complete Information on the New Label](#)

New Fuel Efficiency Program Announced

At the direction of President Obama on May 21, 2010, NHTSA and EPA are taking the next steps to improve fuel efficiency and reduce greenhouse gas (GHG) emissions from mobile sources.

» [Notice of Intent to Prepare an Environmental Impact Statement](#)

» [Read the Presidential Memorandum](#)

» [Fact Sheet](#)

» [Stakeholder Commitment Letters](#)

Joint Rulemaking to Establish CAFE and GHG Emissions Standards, MY 2012-2016

There is a critically important need for our country to address global climate change and to reduce oil consumption. In this context, DOT and EPA worked in coordination to establish standards for CAFE and emissions of greenhouse gases (GHG) for Model Years 2012-2016.

» [Final Rule](#)

» [Notice of Proposed Rulemaking \(NPRM\)](#)

» [Environmental Impact Statements \(Final and Draft\)](#)

Average Fuel Economy Standards, Passenger Cars and Light Trucks, MY 2011-2015

Proposes substantial increases in CAFE standards for passenger cars and light trucks that would enhance energy security by improving fuel economy. Since carbon dioxide (CO₂) is the natural by-product of the combustion of fuel, the increased standards would also address climate change by reducing tailpipe emissions of CO₂. Those emissions represent 97 percent of the total greenhouse gas emissions from motor vehicles. Implementation of the new standards would dramatically add to the billions of barrels of fuel already saved since the beginning of the CAFE program in 1975.

» [Final Environmental Impact Statement](#)

» [NHTSA Public Hearing on the CAFE DEIS](#)

» [Draft Environmental Impact Statement](#)

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Average Fuel Economy Standards, Passenger Cars and Light Trucks, MY 2011

NHTSA estimates that the MY 2011 standards will raise the industry-wide combined average to 27.3 mpg, save 887 million gallons of fuel over the lifetime of the MY 2011 cars and light trucks, and reduce CO₂ emissions by 8.3 million metric tons during that period.

» [Final Rule](#)

» [Final Regulatory Impact Analysis](#)

Light Truck Fuel Economy Standard Rulemaking, MY 2008-2011

This final rule reforms the structure of the CAFE program for light trucks and

establishes higher CAFE standards for model year (MY) 2008-2011 light trucks. Manufacturers may comply with CAFE standards established under the reformed structure (Reformed CAFE) or with standards established in the traditional way (Unreformed CAFE) during a transition period of MYs 2008-2010. In MY 2011, all manufacturers will be required to comply with a Reformed CAFE standard. Under Reformed CAFE, fuel economy standards are restructured so they are based on a measure of vehicle size called "footprint," the product of multiplying a vehicle's wheelbase by its track width. A target level of fuel economy is established for each increment in footprint. Smaller footprint light trucks have higher targets and larger ones, lower targets.

















» [New Light Truck Economy Standards to Save 10.7 Billion Gallons of Fuel](#)












» [Final Rule](#)

» [Final Environmental Assessment](#)

» [Final Regulatory Impact Analysis](#)

Rules

FMVSS ▲	Part ▲	Details	Actions
	49 CFR Parts 523, 533 and 537	Light Truck Average Fuel Economy Standards, Model Years 2008-2011 This final rule reforms the structure of the corporate average fuel economy (CAFE) program for light trucks and establishes higher CAFE standards for model year (MY) 2008-2011 light trucks. Reforming the CAFE program will enable it to achieve larger fuel savings, while enhancing safety and preventing adverse economic consequences.	 Final rule  Final Environmental Assessment  Final Regulatory Impact Analysis
	49 CFR Parts 523, 531, 534, 536, 537	Average Fuel Economy Standards, Passenger Cars and Light Trucks, Model Years 2011-2015 Proposes substantial increases in the Corporate Average Fuel Economy (CAFE) standards for passenger cars and light trucks that would enhance energy security by improving fuel economy. Since the carbon dioxide (CO2) emitted from the tailpipes of new motor vehicles is the natural by-product of the combustion of fuel, the increased standards would also address climate change by reducing tailpipe emissions of CO2. Those emissions represent 97 percent of the total greenhouse gas emissions from motor vehicles. Implementation of the new standards would dramatically add to the billions of barrels of fuel already saved since the beginning of the CAFE program in 1975.	 Supplemental Scoping Notice  Draft Environmental Impact Statement, Appendix C  Draft Environmental Impact Statement, Appendix B  Request for Product Plan Information  Draft Environmental Impact Statement, Appendix A  Draft Environmental Impact Statement  Preliminary Regulatory Impact Analysis  Notice of Proposed Rulemaking (NPRM)
	49 CFR Part 533	Reforming the Automobile Fuel Economy Standards Program This document seeks comment on various issues relating to the corporate average fuel economy (CAFE) program. In particular, this document seeks comments relating to possible enhancements to the program that will assist in furthering fuel conservation while protecting motor vehicle safety and the economic vitality of the auto industry. The agency is particularly interested in improvements to the structure of the CAFE program authorized under current statutory authority. The focus of this document is to solicit comments on the structure of the CAFE program, not the stringency level for a future CAFE standard.	 Request for Comments  Advance Notice of Proposed Rulemaking
	49 CFR Part 538	Automobile Fuel Economy Manufacturing Incentives for Alternative Fueled Vehicles This final rule extends the incentive created by the Alternative Motor Fuels Act of 1988 (AMFA) to encourage the continued production of motor vehicles capable of operating on alternative fuels for four additional model years covering model years (MY) 2005 to MY 2008. Under the special procedures for calculating the fuel economy of those vehicles contained in AMFA, alternative and dual fueled vehicles are assigned a higher fuel economy value for CAFE purposes, which can result in manufacturers earning credits for their fleets. The final rule limits the maximum amount of credit that may be applied to any manufacturers' fleet to 0.9 mpg per fleet during MY 2005 - MY 2008.	 Final Rule
	49 CFR Part 538	Under 49 CFR Part 538, Automotive Fuel Economy Manufacturing Incentives for Alternative Fuel Vehicles To provide an incentive for the production of vehicles that can operate on certain alternative fuels as well as on regular petroleum fuels, Congress established a special procedure for calculating the fuel economy of those vehicles for determining compliance with the Corporate Average Fuel Economy standards.	 Notice of proposed rulemaking (NPRM)
		Draft Environmental Assessment The draft environmental assessment evaluates the potential environmental impacts associated with NHTSA's proposed action to set Corporate Average Fuel Economy Standards for model year 2008-2011 light trucks. This document describes the	 Draft of the Environmental Assessment proposed action to set CAFE standards for model year 2008-2011 light trucks

		environment and resources that might be affected by the proposed light truck CAFE standards for model years 2008-2011, and assesses estimated impacts of alternative actions.	
	NHTSA: 49 CFR Parts 531, 533, and 537; EPA: 40 CFR Parts 86 and 600	Establish Light-Duty Vehicle Greenhouse Gas Emission Standards and CAFE Standards EPA and NHTSA are issuing this joint proposal to establish a National Program consisting of new standards for light-duty vehicles that will reduce greenhouse gas emissions and improve fuel economy. EPA is proposing greenhouse gas emissions standards under the Clean Air Act, and NHTSA is proposing Corporate Average Fuel Economy standards under the Energy Policy and Conservation Act, as amended. These standards apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016, and represent a harmonized and consistent National Program. Under the National Program, automobile manufacturers would be able to build a single light-duty national fleet that satisfies all requirements under both programs while ensuring that consumers still have a full range of vehicle choices.	 Draft Environmental Impact Statement  Notice of Intent  Preliminary Regulatory Impact Analysis  Draft Joint Technical Support Document  Notice of Proposed Rulemaking
		Nissan North America, Inc. Petition for Exemption from Two-Fleet Rule Affecting Compliance with Passenger Automobile Fuel Economy Standards Nissan filed a petition requesting exemption from the two fleet rule for the 2006-2010 model years. The two fleet rule, which is contained in the CAFE statute, requires that a manufacturer divide its passenger automobiles into two fleets, a domestically-manufactured fleet and a non-domestically manufactured fleet, and ensure that each fleet separately meets the CAFE standards for passenger automobiles. The CAFE statute requires NHTSA to grant such a petition unless it finds that doing so would result in reduced employment in the U.S. related to motor vehicle manufacturing. NHTSA's analysis does not support a finding that granting the petition would reduce automotive manufacturing employment in the United States. Accordingly, in this notice, NHTSA is granting Nissan's petition.	 Grant of petition for exemption from two-fleet rule
	49 CFR Parts 523, 531, 533, 534, 536 and 537	Average Fuel Economy Standards, Passenger Cars and Light Trucks, Model Year 2011 NHTSA estimates that the MY 2011 standards will raise the industry-wide combined average to 27.3 mpg, save 887 million gallons of fuel over the lifetime of the MY 2011 cars and light trucks, and reduce CO2 emissions by 8.3 million metric tons during that period.	 Final Regulatory Impact Analysis  Final Rule, Record of Decision
	49 CFR Part 533	Light Truck Average Fuel Economy Standards, Model Years 2005-2007 This final rule established the average fuel economy standards for light trucks that will be manufactured in the 2005-2007 model years (MYs). Chapter 329 of Title 49 of the United States Code requires the issuance of these standards. The standards for all light trucks manufactured by a manufacturer is set at 21.0 mpg for MY 2005, 21.6 mpg for MY 2006, and 22.2 mpg for MY 2007. This rule is effective May 5, 2003.	 Final Environmental Assessment  Final Economic Assessment  Final Rule

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Area Summary - Select this option to display a numeric summary of the labor market information in a selected area.



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State & County QuickFacts

Sullivan County, Tennessee

People QuickFacts	Sullivan County	Tennessee
Population, 2013 estimate	156,595	6,495,978
Population, 2012 estimate	156,655	6,454,914
Population, 2010 (April 1) estimates base	156,823	6,346,113
Population, percent change, April 1, 2010 to July 1, 2013	-0.1%	2.4%
Population, percent change, April 1, 2010 to July 1, 2012	-0.1%	1.7%
Population, 2010	156,823	6,346,105
Persons under 5 years, percent, 2012	5.1%	6.3%
Persons under 18 years, percent, 2012	20.1%	23.1%
Persons 65 years and over, percent, 2012	19.5%	14.2%
Female persons, percent, 2012	51.6%	51.2%
White alone, percent, 2012 (a)	95.4%	79.3%
Black or African American alone, percent, 2012 (a)	2.3%	17.0%
American Indian and Alaska Native alone, percent, 2012 (a)	0.3%	0.4%
Asian alone, percent, 2012 (a)	0.6%	1.6%
Native Hawaiian and Other Pacific Islander alone, percent, 2012 (a)	Z	0.1%
Two or More Races, percent, 2012	1.3%	1.6%
Hispanic or Latino, percent, 2012 (b)	1.6%	4.8%
White alone, not Hispanic or Latino, percent, 2012	94.1%	75.1%
Living in same house 1 year & over, percent, 2008-2012	85.7%	84.4%
Foreign born persons, percent, 2008-2012	1.5%	4.5%
Language other than English spoken at home, pct age 5+, 2008-2012	2.6%	6.6%
High school graduate or higher, percent of persons age 25+, 2008-2012	83.8%	83.9%
Bachelor's degree or higher, percent of persons age 25+, 2008-2012	20.6%	23.5%
Veterans, 2008-2012	14,815	493,980
Mean travel time to work (minutes), workers age 16+, 2008-2012	21.2	24.1
Housing units, 2012	73,878	2,834,620
Homeownership rate, 2008-2012	74.7%	68.4%
Housing units in multi-unit structures, percent, 2008-2012	13.7%	18.2%
Median value of owner-occupied housing units, 2008-2012	\$118,100	\$138,700
Households, 2008-2012	66,595	2,468,841
Persons per household, 2008-2012	2.31	2.51
Per capita money income in past 12 months (2012 dollars), 2008-2012	\$23,823	\$24,294
Median household income, 2008-2012	\$40,025	\$44,140
Persons below poverty level, percent, 2008-2012	16.9%	17.3%
Business QuickFacts	Sullivan County	Tennessee
Private nonfarm establishments, 2011	3,339	129,489 ¹
Private nonfarm employment, 2011	64,241	2,300,542 ¹
Private nonfarm employment, percent change, 2010-2011	1.5%	1.6% ¹
Nonemployer establishments, 2011	9,543	473,451
Total number of firms, 2007	12,859	545,348
Black-owned firms, percent, 2007	S	8.4%

American Indian- and Alaska Native-owned firms, percent, 2007	0.3%	0.5%
Asian-owned firms, percent, 2007	S	2.0%
Native Hawaiian and Other Pacific Islander-owned firms, percent, 2007	F	0.1%
Hispanic-owned firms, percent, 2007	0.8%	1.6%
Women-owned firms, percent, 2007	23.0%	25.9%

Manufacturers shipments, 2007 (\$1000)	5,463,624	140,447,760
Merchant wholesaler sales, 2007 (\$1000)	1,055,317	80,116,528
Retail sales, 2007 (\$1000)	2,026,276	77,547,291
Retail sales per capita, 2007	\$13,200	\$12,563
Accommodation and food services sales, 2007 (\$1000)	255,074	10,626,759
Building permits, 2012	289	20,147

Geography QuickFacts		Sullivan County	Tennessee
Land area in square miles, 2010		413.36	41,234.90
Persons per square mile, 2010		379.4	153.9
FIPS Code		163	47
Metropolitan or Micropolitan Statistical Area		Kingsport- Bristol- Bristol, TN- VA Metro Area	

1: Includes data not distributed by county.

(a) Includes persons reporting only one race.

(b) Hispanics may be of any race, so also are included in applicable race categories.

D: Suppressed to avoid disclosure of confidential information

F: Fewer than 25 firms

FN: Footnote on this item for this area in place of data

NA: Not available

S: Suppressed; does not meet publication standards

X: Not applicable

Z: Value greater than zero but less than half unit of measure shown

Source U.S. Census Bureau: State and County QuickFacts. Data derived from Population Estimates, American Community Survey, Census of Population and Housing, State and County Housing Unit Estimates, County Business Patterns, Nonemployer Statistics, Economic Census, Survey of Business Owners, Building Permits
Last Revised: Thursday, 27-Mar-2014 09:57:49 EDT



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The state of Tennessee has formally adopted the Common Core State Standards and transition to these new, more rigorous standards will be completed by 2014-2015. The Sullivan County Department of Education has taken a proactive approach to the Common Core State Standards, with all K-2 curriculum transitioned to the Core Standards during the 2011-2012 school year. Many plans and workshops are in the works to ensure that our teachers have the most current information and collaborative time to plan for the coming transition. More information can be found here: www.sullivank12.net/learning/common-core-resources/



The Sullivan County School Nutrition Department provides a very important support service to your child's education. Our main goal is to meet the nutritional needs of students on a daily basis, helping them to be more ready to learn throughout the day. If you would like to learn more about the department, find access to helpful programs such as MySchoolMoney, LunchApplication.com or just need to download the latest month's school lunch calendar, please visit our School Nutrition Department webpage. You can visit the page at www.sullivank12.net/departments/school-nutrition



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The Sullivan County Board of Education, in partnership with students, families, employees and community, will utilize all available resources to provide a collaborative learning environment that will enable each student to reach his/her maximum potential as a productive and successful citizen in an ever changing global and technological environment.

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Sullivan County Department of Education

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Water Quality Reports & Publications

Division Resources

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Water Quality Laws

Law	Citation	Brief Description	Contact Person
Tennessee Water Quality Control Act	<u>69-3-101 et seq</u>	Law establishing Water Resources program. Identifies responsibilities and extent of authority for Commissioner and the Water Quality Control Board. Establishes concept of clean water goals and water quality planning and assessment. Provides for permitting program for discharges to, or alterations of, water of the state.	Vojin Janjic <u>Vojin.Janjic@tn.gov</u>
Tennessee Environmental Protection Fund	<u>68-203-101</u>	Law establishing mechanism for fees to be charged for permits issued by the Division of Water Resources.	Lloyd Craig <u>Lloyd.Craig@tn.gov</u>

Rules

All rule downloads provided by the [Secretary of State \(/sos/\)](#)

Regulation	Citation	Brief Description	Contact Person
Certification of Qualified Hydrologic Professionals	<u>0400-40-17</u>	Establishes qualifications and process for persons to obtain certification as a hydrologic professional for the purpose of identifying streams and wet weather conveyances. Includes requirements for submitting of hydrologic determination reports.	Jimmy Smith <u>Jimmy.R.Smith@tn.gov</u>
General Rules	<u>0400-40-01</u>	Establishes treatment requirements for point source dischargers.	Wade Murphy <u>Wade.Murphy@tn.gov</u>
Plans Submittal, Control of Construction	<u>0400-40-02</u>	This regulation identifies the requirements for Division approval of plans for construction of sewer lines and treatment plant expansions.	Phil Simmons <u>Phil.Simmons@tn.gov</u>
General Water Quality Criteria 2013 Version	<u>0400-40-03</u>	Establishes numeric and narrative criteria for each of the seven classified uses. Additionally, contains Tennessee's Antidegradation Policy, which identifies scenarios in which degradation can be allowed in surface waters. Note: groundwater criteria are in a separate document available from the Division of Underground Storage Tanks.	Greg Denton <u>Gregory.Denton@tn.gov</u>
Use Classifications for Surface Waters 2013 Version	<u>0400-40-04</u>	Establishes seven classified uses for surface waters. Identifies a combination of uses for each named or unnamed surface water. Note: classified uses for groundwater are established in a separate document available from the Division of Underground Storage Tanks.	Greg Denton <u>Gregory.Denton@tn.gov</u>
Effluent Standards	<u>0400-40-05</u>	This regulation establishes treatment requirements for facilities that discharge to effluent-limited streams.	Wade Murphy <u>Wade.Murphy@tn.gov</u>
UIC Regulations (Division of Water Supply)	<u>1200-4-6</u>	Establishes permitting process for the discharge of materials into ground water by way of wells and/or sinkholes.	Scotty Sorrells <u>Scotty.Sorrells@tn.gov</u>
Aquatic Resource Alteration Permits	<u>0400-40-07</u>	Establishes permitting process for physical alteration of waters of the state. Includes general permits for several activities including utility line crossings.	Jimmy Smith <u>Jimmy.R.Smith@tn.gov</u>
Navigable Waters	<u>0400-40-</u>	Establishes permitting process for physical	Robert Baker

Permit	<u>08</u>	alteration of navigable waters not regulated by the Corps of Engineers. This regulation is specific to Reelfoot Lake.	<u>Robert.D.Baker@tn.gov</u>
Water Well Licensing(Division of Water Supply)	<u>1200-4-9</u>	Establishes licensing process for well drillers. Identifies requirements for well construction.	Luke Ewing <u>Luke.Ewing@tn.gov</u>
NPDES General Permits	<u>0400-40-10</u>	Establishes general NPDES permits for certain activities including discharge of industrial stormwater and Concentrated Animal Feeding Operations.	Wade Murphy <u>Wade.Murphy@tn.gov</u>
Environmental Protection Fund Fee Rules	<u>0400-40-11</u>	Establishes fee schedules for different types of permits issued by the Division.	Wayne Gregory <u>Wayne.Gregory@tn.gov</u>
Pretreatment Requirements	<u>0400-40-14</u>	Establishes responsibilities of State, and local government, industry and the public to implement the National Pretreatment Standards.	Yatasha Moore <u>Yatasha.Moore@tn.gov</u>
Biosolids Management	<u>0400-40-15</u>	These rules establish standards, which consist of general requirements, contaminant limits, management practices, and operational standards, for the land application of biosolids generated during the treatment of domestic sewage in a wastewater treatment works.	Robert G. O'Dette, M.S., P.E <u>Robert.Odette@tn.gov</u>
Public Sewerage Systems	<u>0400-40-16</u>	Establishes supervision requirements during the construction and operation of public sewage systems.	Phil Simmons <u>Phil.Simmons@tn.gov</u>

General Information and Planning Documents

Publication	Brief Description	Contact Person
<u>Tennessee's Watershed Management Approach</u>	A brochure describing the watershed management approach as envisioned and implemented by the Division of Water Resources.	Sherry Wang <u>Sherry.Wang@tn.gov</u>
<u>Bacteriological and Fishing Advisories in Tennessee</u>	List of streams and reservoirs where fish consumption or human contact advisories have been issued.	Greg Denton <u>Gregory.Denton@tn.gov</u>
<u>Stream Mitigation Guidelines</u> July 1, 2004	This document provides general guidance and discussion for compensatory mitigation of permanent impacts to streams.	Jimmy Smith <u>Jimmy.R.Smith@tn.gov</u>

Water Quality Assessment Publications

New Publications

Publication	Brief Description	Contact Person
<u>Final 2012 303(d) List</u> January 2014	A final list of streams, rivers, reservoirs, and lakes that do not meet water quality standards in 2012. Provides pollutant information and TMDL prioritization. <u>Responses to Public Comments</u>	Greg Denton Gregory.Denton@tn.gov
<u>Quality Assurance Project Plan for 106 Monitoring in the Division of Water Resources</u> <u>Volume I</u> February 2013	This document describes monitoring, analyses, quality control, and assessment procedures used by the Division of Water Resources to develop TMDLs, 305(b) and 303(d) assessments.	Linda Cartwright Linda.Cartwright@tn.gov
<u>2012 305(b) Report: The Status of Water Quality in Tennessee</u>	Report on the general water quality of surface waters in Tennessee. Contains information about water quality, the assessment process, use support, causes and sources of pollution, and waterbodies posted due to human health risks.	Debbie Arnwine Debbie.Arnwine@tn.gov
<u>Exceptional Tennessee Waters & Outstanding National Resource Waters</u>	The Division of Water Resources has compiled a partial list of exceptional Tennessee waters based on characteristics set forth in the regulation by the Tennessee Water Quality Control Board.	Debbie Arnwine Debbie.Arnwine@tn.gov
<u>EPA Approved Final Version Year 2010 303(d) List</u> October 2011	An EPA approved final list of streams, rivers, reservoirs, and lakes that do not meet water quality standards in 2010. Provides pollutant information and TMDL prioritization.	Greg Denton Gregory.Denton@tn.gov
<u>Quality Systems Standard Operating Procedure for Chemical and Bacteriological Sampling of Surface Water</u> (TDEC, WPC) (4.4 mb pdf) August 2011	This document describes procedures for collecting chemical and bacteriological samples of surface waters as well as chain-of-custody and quality control approved by the Division of Water Resources. Protocols are also described for the specifications and accurate use of water-quality probes, sampling equipment, and flow meters.	Debbie Arnwine Debbie.Arnwine@tn.gov
<u>Quality System Standard Operating Procedure for Macroinvertebrate Stream</u>	This document describes procedures for performing two types of macroinvertebrate surveys approved by the Division of Water Resources for assessing	Debbie Arnwine Debbie.Arnwine@tn.gov

<u>Surveys</u> (TDEC, WPC) (2.7 mb pdf) July 2011	biological integrity of streams. The entire procedure is described including protocols for sample collection, habit assessment, sample analysis, data reduction and reporting.	
<u>2010 305(b) Report The Status of Water Quality in Tennessee</u> November 2010	Report on the general water quality of surface waters in Tennessee. Contains information about water quality, posted waterbodies, and watershed summaries.	Greg Denton Gregory.Denton@tn.gov
<u>Quality System Standard Operating Procedure for Periphyton Stream Surveys</u> January 2010	This document describes procedures for performing periphyton surveys approved by the Division of Water Resources for assessing biological integrity of streams. The entire procedure is described including protocols for sample collection, habit assessment, sample analysis, data reduction and reporting."	Debbie Arnwine Debbie.Arnwine@tn.gov

Water Quality Assessment Publications

Existing Publications

Publication	Brief Description	Contact Person
<u>2010 Probabilistic Monitoring of Wadeable Streams in Tennessee</u>	A probabilistically-based survey of wadeable streams in Tennessee. This report is a follow-up to a study conducted in 2007 and 2008, which was published in a series of 6 reports.	Debbie Arnwine Debbie.Arnwine@tn.gov
<u>Mercury Air Deposition and Selenium Levels in Tennessee Fish and Surface Water</u> December 2010	This document reports the results from a study that was designed to test whether predicted mercury air deposition levels using the REMSAD model was correlated to mercury concentrations in fish tissue and water samples. Selenium concentrations were also analyzed in the fish tissue and water samples.	Debbie Arnwine Debbie.Arnwine@tn.gov
2007-2008 Probabilistic Monitoring of Wadeable Streams in Tennessee <u>Volume 2: Study Design and Stream Characterization</u> February 2009	A probabilistically-based survey of wadeable streams in Tennessee. A series of 6 reports are being published to convey the results of the study. Volume 2 provides detail on the design and implementation of the project. It describes the site selection process. Information on drainage area, ecoregion, watersheds and land use is discussed to determine representativeness of the subsample to the entire population of Tennessee streams. This volume	Debbie Arnwine Debbie.Arnwine@tn.gov

	also provides information on sample collection, analyses and quality assurance.	
<p>2007-2008 Probabilistic Monitoring of Wadeable Streams in Tennessee</p> <p><u>Volume 3: Macroinvertebrates and Habitat</u></p> <p>February 2009</p>	<p>A probabilistically-based survey of wadeable streams in Tennessee. A series of 6 reports are being published to convey the results of the study.</p> <p>Volume 3 provides details on macroinvertebrate populations and habitat quality.</p>	<p>Debbie Arnwine Debbie.Arnwine@tn.gov</p>
<p>2007-2008 Probabilistic Monitoring of Wadeable Streams in Tennessee</p> <p><u>Volume 4: Water Chemistry</u></p> <p>March 2009</p>	<p>A probabilistically-based survey of wadeable streams in Tennessee. A series of 6 reports are being published to convey the results of the study.</p> <p>Volume 4 provides details on field measurements and chemical data.</p>	<p>Debbie Arnwine Debbie.Arnwine@tn.gov</p>
<p>2007-2008 Probabilistic Monitoring of Wadeable Streams in Tennessee</p> <p><u>Volume 5: Pathogens</u></p> <p>February 2009</p>	<p>A probabilistically-based survey of wadeable streams in Tennessee. A series of 6 reports are being published to convey the results of the study.</p> <p>Volume 5 provides details on bacteriological data using the indicator organism E. coli.</p>	<p>Debbie Arnwine Debbie.Arnwine@tn.gov</p>
<p>2007-2008 Probabilistic Monitoring of Wadeable Streams in Tennessee</p> <p><u>Volume 6: Periphyton</u></p> <p>June 2010</p>	<p>A probabilistically-based survey of wadeable streams in Tennessee. A series of 6 reports are being published to convey the results of the study.</p> <p>Volume 6 provides details on periphyton.</p>	<p>Debbie Arnwine Debbie.Arnwine@tn.gov</p>
<p><u>2008 305(b) Report The Status of Water Quality in Tennessee</u></p> <p>April 2008</p>	<p>Report on the general water quality of surface waters in Tennessee, including 2006 – 2008 assessments. Contains information about water quality, posted waterbodies, and watershed summaries.</p>	<p>Greg Denton Gregory.Denton@tn.gov</p>
<p><u>Mercury Levels in Tennessee Fish</u></p>	<p>The Tennessee Department of Environment and Conservation compiled tissue data from multiple agencies in order to analyze mercury concentrations in fish from Tennessee's rivers, lakes, reservoirs and streams. This analysis led to the issuance of new and updated mercury advisories in April, 2007.</p>	<p>Greg Denton Gregory.Denton@tn.gov</p>

<u>Probabilistic Monitoring of Streams Below Small Impoundments in Tennessee</u>	<p>This report describes the results of a probabilistic study of 75 streams below small impoundments and the effects of the impoundments on aquatic life, nutrients, dissolved oxygen, pH, iron, manganese, habitat, flow, and periphyton density.</p>	<p>Debbie Arnwine Debbie.Arnwine@tn.gov</p>
<p><u>EPA Approved Final Version Year 2006 303(d) List</u></p> <p>December 2006</p>	<p>An EPA approved final list of streams, rivers, reservoirs, and lakes that do not meet water quality standards in 2006. Provides pollutant information and TMDL prioritization.</p>	<p>Greg Denton Gregory.Denton@tn.gov</p>
<p><u>2006 305(b) Report The Status of Water Quality in Tennessee</u></p> <p>April 2006</p>	<p>Report on the general water quality of surface waters in Tennessee, including 2004 - 2006 assessments. Contains information about water quality, posted waterbodies, and watershed summaries.</p>	<p>Greg Denton Gregory.Denton@tn.gov</p>
<p><u>Threatened and Endangered Species List</u></p>	<p>This lists the known threatened and endangered species including aquatic and semi-aquatic plants and aquatic animals in Tennessee. The list is subject to revision.</p>	<p>Debbie Arnwine Debbie.Arnwine@tn.gov</p>
<p><u>Regional Characterization of Streams in Tennessee with Emphasis on Diurnal Dissolved Oxygen, Nutrients, Habitat, Geomorphology and Macroinvertebrates</u></p> <p>September 2005</p>	<p>This report describes a 2004 statewide study, which is a continuation of a 2002 study of regional differences in diurnal dissolved oxygen patterns in wadeable streams. Other goals of this study were to characterize streams based on geomorphology, periphyton, and nutrients and describe streams that cross ecoregions in west Tennessee.</p>	<p>Debbie Arnwine Debbie.Arnwine@tn.gov</p>
<p><u>Tennessee's Plan for Nutrient Criteria Development (TDEC, WPC, PAS)</u></p> <p>September 2007</p>	<p>Describes the approach the Division of Water Resources will use to identify and adopt additional water quality standards for nutrient related parameters.</p>	<p>Greg Denton Gregory.Denton@tn.gov</p>
<p><u>Probabilistic Monitoring in the Inner Nashville Basin with Emphasis on Nutrient and Macroinvertebrate Relationships (Arnwine, Sparks, and Denton, 2003)</u></p>	<p>This report describes the results of a probabilistic study conducted in the Inner Nashville Basin to determine the relationship between the biological communities and nutrient levels.</p>	<p>Debbie Arnwine Debbie.Arnwine@tn.gov</p>
<p><u>The Results of Fish Tissue Monitoring in Tennessee:</u></p>	<p>Contains a general description of the fish tissue monitoring program and contains the result of</p>	<p>Greg Denton Gregory.Denton@tn.gov</p>

<u>1992 – 1997. (Freeman & Denton)</u>	contaminate monitoring for a five-year period.	
<u>Development of Regionally-Based pH Criteria for Wadeable Streams (Arnwine and Denton, 2002)</u> April 2004	This document describes a statewide study of regional differences in the effect pH has on the aquatic communities in wadeable streams and rivers. These results will form the basis of recommendations for regional pH criteria to be formalized in the General Water Quality Criteria..	Greg Denton Gregory.Denton@tn.gov
<u>Evaluation of Regional Dissolved Oxygen Patterns of Wadeable Streams in Tennessee Based on Diurnal and Daytime Monitoring (Arnwine and Denton, 2003)</u> (2.39 mb pdf)	This report describes a statewide study of regional differences in both diurnal and daylight dissolved oxygen patterns in wadeable streams. Study results will help guide fish and aquatic life criteria decisions for the 2002 triennial review of water quality standards.	Debbie Arnwine Debbie.Arnwine@tn.gov
<u>Dioxin Levels in Pigeon River Fish 1996-2002 (Denton and Arnwine, 2002)</u> (1.02 mb pdf)	This report describes the improvement in water quality that has resulted in the removal of the fish tissue advisory for the Tennessee portion of the Pigeon River.	Greg Denton Gregory.Denton@tn.gov
<u>Comparison of Nutrient Levels, Periphyton Densities and Diurnal Dissolved Oxygen Patterns in Impaired and Reference Quality Streams in Tennessee (Arnwine and Sparks) 2003</u>	This document compares algal densities and nutrient levels to diurnal DO patterns in reference and impaired streams in 16 subcoregions.	Debbie Arnwine Debbie.Arnwine@tn.gov
<u>EPA Approved Final Version Year 2004 303(d) List</u> April 2005	A list of streams and lakes that do not meet water quality standards in 2004. Provides cause and source of pollutant information and TMDL prioritization.	Greg Denton Gregory.Denton@tn.gov
<u>2004 305(b) Report The Status of Water Quality in Tennessee (Denton, Sparks, Arnwine, Cartwright)</u>	Report documenting the general quality of surface waters during the period 2002-2004. Contains information about streams, lakes, and wetlands. Identifies streams that are currently posted due to fish contamination and elevated bacteria levels.	Greg Denton Gregory.Denton@tn.gov
<u>Final Version Year 2002 303(d) List</u>	A list of the streams and lakes not meeting water quality standards in 2002. Provides documentation of pollutants and general sources of pollutants. Prioritizes	Greg Denton Gregory.Denton@tn.gov

January 2004	streams for future TMDL development.	
<u>2002 305(b) Report The Status of Water Quality in Tennessee (Denton, Sparks, Arnwine, Cartwright)</u> (6.69 mb pdf)	Report documenting the general quality of surface waters during the period 2000-2002. Contains information about streams, lakes, and wetlands. Highlights success stories and innovative management strategies. Identifies streams that are currently posted due to fish contamination and elevated bacteria levels.	Greg Denton Gregory.Denton@tn.gov
<u>Habitat Quality of Least-Impacted Streams in Tennessee 2001 (Arnwine and Denton)</u>	This report describes the habitat quality of ecoregion reference streams. Seasonal variability, stream size and ecoregion expectations are discussed. Reference data is compared to historic habitat assessments. Guidelines for maintaining protective habitat in each of Tennessee's 25 ecological subregions are provided. The report includes a question and answer section of habitat guidance implementation.	Debbie Arnwine Debbie.Arnwine@tn.gov
<u>Development of Regionally-Based Numeric Interpretations of Tennessee's Narrative Biological Integrity Criterion 2001 (Arnwine and Deton)</u>	This report contains guidance for interpretation of existing narrative biological criteria based on regional reference data. The report details macroinvertebrate monitoring at reference streams. The metric selection and assessment guidelines are discussed. A description of how ecoregions were grouped into bioregions for assessment purposes is included. Seasonal variability of macroinvertebrate populations is discussed. Numeric biocriteria based on a multi-metric index is proposed and compared to historic targeted and probabilistic monitoring. The report contains a question and answer section on biocriteria implementation.	Debbie Arnwine Debbie.Arnwine@tn.gov
<u>Development of Regionally-Based Interpretations of Tennessee's Narrative Nutrient Criterion. 2001 (Denton, Arnwine and Wang)</u>	This report contains guidance for interpretation of existing narrative nutrient criteria based on regional reference data. The report summarizes reference nutrient data and describes how nitrate+nitrite and total phosphorus goals were developed. A comparison of reference data to historic targeted and probabilistic monitoring sites is included. Relationships between nutrient levels and macroinvertebrate populations are explored. The report contains a question and answer section on nutrient criteria implementation.	Greg Denton Gregory.Denton@tn.gov
<u>Tennessee Ecoregion Project 1994-1999. (Arnwine, Broach, Cartwright and Denton)</u>	This report contains a detailed description of Tennessee's ecoregion delineation and reference stream monitoring project. The ecoregion report describes how subregions were defined and how reference streams were selected. The report includes descriptions of macroinvertebrate, bacteriological, and	Debbie Arnwine Debbie.Arnwine@tn.gov

	chemical monitoring as well as habitat assessment. Summaries of all data are provided.	
The Status of Water Quality in Tennessee Year 2000 305(b) Report (Denton, Vann and Wang)	Report documenting the general quality of surface waters during the period 1998-2000. Contains information about streams, lakes, and wetlands. Highlights success stories, emerging water quality issues, and innovative management strategies. Identifies streams that are currently posted due to fish contamination and elevated bacteria levels. Additionally, the 305(b) report contains the water quality assessments of group 1,2 and 3 watersheds.	Greg Denton Gregory.Denton@tn.gov
Ecoregions of Tennessee (Griffith, Omernik, and Azevedo)	This EPA publication documents work to delineate sub-ecoregion boundaries in Tennessee.	Debbie Arnwine Debbie.Arnwine@tn.gov
Level III and IV Ecoregions in Tennessee	A one-page color map illustrating the boundaries of ecoregions and sub-ecoregions in Tennessee.	Debbie Arnwine Debbie.Arnwine@tn.gov

Technical/Engineering Documents

Publications	Brief Description	Contact
Division of Water Resources Collection System Project	Download Draft Documents for Review	Robert G. O'Dette, M.S., P.E Robert.Odette@tn.gov
Pretreatment Model Sewer Use Ordinance	View in PDF format View in Word format	Yatasha Moore Yatasha.Moore@tn.gov
Design Criteria for Sewage Works	Guidance for municipalities and industries for the design of sewage systems and wastewater treatment plants. Design Criteria- Table of Contents (/environment/water/docs/wpc/design-criteria_table-of-contents.pdf) Design Criteria Chapter 1 (/environment/water/docs/wpc/design-criteria_chapter-1.pdf) - General Engineering Requirements Design Criteria Chapter 2 (/environment/water/docs/wpc/design-criteria_chapter-2.pdf) - Sewers and Wastewater Pumping Stations	Robert G. O'Dette, M.S., P.E Robert.Odette@tn.gov

Design Criteria Chapter 3

(/environment/water/docs/wpc/design-criteria_chapter-3.pdf) - Laboratory, Personnel, Maintenance Facilities and Safety Design

Design Criteria Chapter 4

(/environment/water/docs/wpc/design-criteria_chapter-4.pdf) - Preliminary and Pretreatment Facilities

Design Criteria Chapter 5

(/environment/water/docs/wpc/design-criteria_chapter-5.pdf) - Clarifiers

Design Criteria Chapter 6

(/environment/water/docs/wpc/design-criteria_chapter-6.pdf) - Fixed Film Reactors

Design Criteria Chapter 7

(/environment/water/docs/wpc/design-criteria_chapter-7.pdf) - Activated Sludge

Design Criteria Chapter 8

(/environment/water/docs/wpc/design-criteria_chapter-8.pdf) - Nitrification

Design Criteria Chapter 9

(/environment/water/docs/wpc/design-criteria_chapter-9.pdf) - Ponds and Aerated Lagoons

Design Criteria Chapter 10

(/environment/water/docs/wpc/design-criteria_chapter-10.pdf) - Disinfection

Design Criteria Chapter 11

(/environment/water/docs/wpc/design-criteria_chapter-11.pdf) - Tertiary Treatment / Advanced Wastewater Treatment

Design Criteria Chapter 12

(/environment/water/docs/wpc/design-criteria_chapter-12.pdf) - Sludge Processing and Disposal

Design Criteria Chapter 13

(/environment/water/docs/wpc/design-criteria_chapter-13.pdf) - Plant Flow Measurement and Sampling

Design Criteria Chapter 14

(/environment/water/docs/wpc/design-criteria_chapter-14.pdf) - Instrumentation, Control and Electrical

Systems

Design Criteria Chapter 15

(/environment/water/docs/wpc/design-criteria_chapter-15.pdf) - Managed Wastewater Dispersal Using Drip Irrigation

Design Criteria Chapter 16

(/environment/water/docs/wpc/design-criteria_chapter-16.pdf) - Design Guidelines for Wastewater Treatment Systems Using Spray Irrigation

Design Criteria Chapter 17

(/environment/water/docs/wpc/design-criteria_chapter-17.pdf) - Design Guidelines for Wastewater Dispersal Using Drip Irrigation

Design Criteria Chapter 18

(/environment/water/docs/wpc/design-criteria_chapter-18.pdf) - Collection System Rehabilitation

Wastewater Plans Review Fee Worksheet

(docs/wpc/WastewaterPlansReviewFeeWorksheet.pdf)

Erosion and Sediment Control Handbook

A guide for protection of state waters through the use of best management practices during land disturbing activities.

Robert Karesh
Robert.Karesh@tn.gov

TN Oil and Grease Control Guidance Document

Guidance for municipalities in creating regulations and enforcement plans dealing with oil and grease on a local level.

[Guidance Document Cover Page \(78.6KB\)](#)

[Guidance Document \(528KB\)](#)

[Appendices \(512KB\)](#)

Jennifer Peters Dodd
Jennifer.Dodd@tn.gov



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Learn why you were [selected](#); why you should [participate](#); how to [respond](#); how we [protect your privacy](#); why we ask specific [questions](#); and more in [About the Survey](#).



Explore the Interactive Form

Before you get started filling out the questionnaire, click through our [interactive form](#) that explains how the collected information helps communities. (Flash required). Or get our pdfs on why we ask specific [questions](#).



New Report on Out-of-State and Long Commutes

Trends in Commuting are explored in this new report. Highlights include which states have the longest commutes, the most out-of-state commuters and more. Download [Out-of-State and Long Commutes: 2011](#) based on data collected from the American Community Survey.



How the ACS Works for Your Community

View a visual representation of the data collection process of the ACS and how this translates into dollars for your community to help fund school-lunch programs, place new hospitals, build new businesses and take other actions that lead to healthy towns and cities. (Text version also available.)

SEARCH

Current Data Profiles

Social, Economic, Housing and Demographic Characteristics

United States

Go

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Data by Topic

People

- Age and Sex / Aging
- Ancestry
- Disability
- Commuting to Work
- Education
- Employment
- Family/Relationships
- Health Insurance
- Income and Earnings
- Language
- Origins
- Population Change
- Poverty
- Race and Ethnicity
- Veterans

Housing

- Financial Characteristics
- Physical Characteristics

Contact & Help

[Contact ACS](#)[Get Email Updates](#)[Frequently Asked Questions](#)[Site Map](#)



Transportation is a critical part of our nation's infrastructure

Learn how your answers on the American Community Survey help communities make smarter decisions about transportation resources to keep America moving.

[PDF] or  denotes a file in Adobe's [Portable Document Format](#). To view the file, you will need the [Adobe® Reader®](#)  available **free** from Adobe.

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Source: U.S. Census Bureau | American Community Survey Office | [Email ACS](#) | Last Revised: May 13, 2014
Give us your [feedback](#) on this website!

2010 Census Data

2010 Data Release Schedules

[2010 Census Data Products: United States – At A Glance](#)
[2010 Census Data Product Descriptions](#) [PDF]

2010 Census Summary Files

The Summary File 1 data tables provide the most detailed information available so far from the 2010 Census about a community's entire population, including cross-tabulations of age, sex, households, families, relationship to householder, housing units, detailed race and Hispanic or Latino origin groups, and group quarters. The Summary File 2 tables add a new layer of detail — making information, such as age, relationship and homeownership available for specific race and ethnic groups within a community.

[Summary File 1](#)

[Summary File 2](#)

American Indian & Alaska Native Map

This map shows the 2010 Census American Indian and Alaska Native areas along with graphics that reflect 2010 Census statistics.



2010 Guide to State and Local Census Geography

This resource contains state geographic information and provides links to lists of geographic entities within each state.

2010 Census Demographic Profiles

The first set of 2010 Census Demographic Profiles are ready for viewing. These profiles provide details about race and Hispanic groups, age, sex and housing status. The profiles will be released on a state-by-state basis for each of the 50 states, the District of Columbia and Puerto Rico.



[Interactive Population Map](#) — Explore the data with this interactive tool

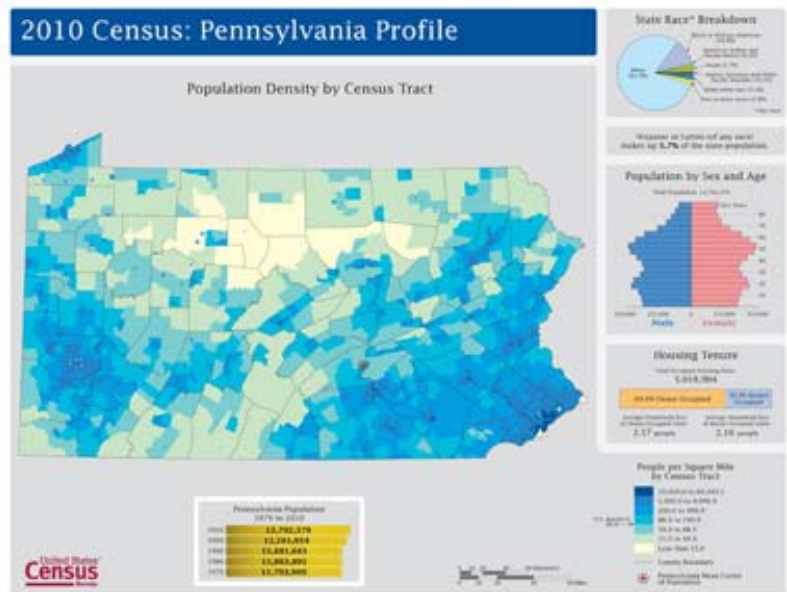
[Download Demographic Profiles](#)

[Download Summary File 1](#)

[2010 Census Population Profile Maps](#)

The U.S. Census Bureau's 2010 Census Profile maps present a graphic overview of selected demographic information from the 2010 Census of Population and Housing. In addition to a population density map, each page includes a pie chart showing percent of total population by race, a population pyramid, and a bar chart illustrating housing occupancy rates. The map series consists of one page-sized map for each state in the United States, the District of Columbia, and Puerto Rico, as well as a national map.

These map files are in Portable Document Format (PDF) and were designed to be viewed with [Adobe® Reader®](#) Offsite, which is available **free** from Adobe. If your browser opens them in another PDF reader, the screen display may not accurately reproduce the map.



These maps are being released on a flow basis as they become available. Go to our [2010 Census Population Profile Maps](#) page to view the individual state maps that have been released.

2010 Census Briefs

[Native Hawaiian and Other Pacific Islander: 2010](#)

[Households and Families: 2010](#)

[The Asian Population: 2010](#)

[The American Indian and Alaska Native Population: 2010](#)

[The Older Population: 2010](#)

[Congressional Apportionment](#)

[Housing Characteristics: 2010](#)

[The White Population: 2010](#)

[The Black Population: 2010](#)

[The Hispanic Population: 2010](#)

[La Población Hispana: 2010](#)

[Age and Sex Composition: 2010](#)

[Population Distribution and Change: 2000 to 2010](#)[An Overview: Race and Hispanic Origin and the 2010 Census](#)

Redistricting Data

The Census Bureau's interactive redistricting map widget enables users to view local 2010 Census data by state, including population change and race and Hispanic or Latino origin data by county.

Additional Data: To access data from multiple geographies within the state, such as census blocks, tracts, voting districts, cities, counties and school districts, visit American Factfinder:

<http://factfinder2.census.gov>.

Embed on your site by copying the following code, replacing XX with your two-digit state abbreviation (e.g. "LA") and optionally replacing the values for width and height. To embed the U.S. map, leave off the state parameter.

```
<iframe src="http://www.census.gov/2010census/data/embedstate.html?state=XX" frameborder="0" scrolling="no"
marginheight="0" marginwidth="0" width="800" height="510">IFRAMES not supported</iframe>
```

Note: height should equal width divided by 1.566, rounded to a whole number. For example, 940x600 or 800x510.

Data provided by U.S. Census Bureau.

- - Represents zero or rounds to 0.0
- The term 'county' refers to county or equivalent entity.
- For more information on Substantial Changes to Counties and County Equivalent Entities: 1970-Present, please visit: <http://www.census.gov/geo/www/tiger/ctychng.html>

For questions, comments and suggestions about Census Bureau data visualizations, please contact: pio.2010@census.gov.

Apportionment Data

The Census Bureau's interactive map widget enables users to view 10 decades of apportionment history, current apportionment totals and our country's changing population through the past century.

View as HTML: [Population Change](#), [Population Density](#), [Apportionment](#)

Download as CSV: [Population Change](#), [Population Density](#), [Apportionment](#)

Embed on your site:

```
<iframe src="http://www.census.gov/2010census/data/embedmap.php" frameborder="0" scrolling="no"
marginheight="0" marginwidth="0" width="638" height="405">IFRAMES not supported</iframe>
```

Data provided by U.S. Census Bureau.

Population Density: Includes Puerto Rico and the District of Columbia in population density rankings, 1 to 52.

Apportionment: Apportionment is the process of dividing the 435 seats in the House of Representatives among the 50 states. Puerto Rico and the District of Columbia are not included.

Alaska and Hawaii gained statehood in 1959. Arizona and New Mexico gained statehood in 1912. For apportionment, data before those periods are not reflected on the map.

Congress did not reapportion in 1920. Therefore, the apportionment data shown for this decade replicates the data for 1910. There is no data reflected for the apportionment population in the 1920 "people per representative" chart.